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Bibliotheca Herpetologica

John Hutchison Garnier (1823–1898) and his Contributions to the Herpetology of Ontario

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Abstract: John Hutchison Garnier (1823–1898) was a pioneering herpetologist based in the town of Lucknow, Ontario. Some mystery surrounds his birthplace as well as his birthname. Garnier was a physician but spent much of his time hunting and observing wildlife. He built a large private natural history collection by exchanging specimens with correspondents all over the world. Among his papers on amphibians and reptiles was the first list of the herpetofauna of Ontario published in 1881 and augmented in 1882 and 1894. Although his species list was inflated with misidentifications and synonyms, he appears to have recognized 39 of the 50 species of amphibians and reptiles currently accepted as present in the province or recently extirpated. Garnier's publications included several novel nomina. He described two species of *Necturus* from Ontario. While one is generally acknowledged and included in the synonymy of *N. maculosus*, the other has only been cited once in 144 years. Additional new varieties named by Garnier have likewise escaped notice. He also published on the two rattlesnake species in Ontario, including the now extirpated *Crotalus horridus*, and on treatments for snakebite. Most of Garnier's work is now forgotten and only 50 Ontario specimens are confirmed as extant from his collection, now housed in the Royal Ontario Museum and the U.S. National Museum of Natural History. His activities as a frontier naturalist in the mid-19th century represent a starting point for herpetological studies in Ontario.

Keywords: Canada; *Necturus*; *Crotalus*; *Thamnophis*; biography; Royal Ontario Museum; collections

Introduction

Herpetofaunal studies in Canada began quite late in comparison to those in the adjacent United States (Cook 2007; Rowell 2012). This is even true of Ontario, Canada's most populous province and home to both its largest city, Toronto, and its capital, Ottawa. Most sources cite Nash (1905, 1908) as the first summary of the amphibians and reptiles of Ontario, and Bleakney (1958) noted that for eastern Ontario, Patch's (1918) work on the Ottawa area was the earliest available publication. However, there were earlier attempts to document the provincial herpetofauna. Ure (1858) listed 14 chelonians, 13 snakes, 12 anurans and 12 urodeles in *The Hand-Book of Toronto* (Fig. 1). This impressive tally (the current species and subspecies count for greater Toronto is only about 30; ORAA 2023), however, includes many obviously extralimital forms, including, for example, *Amphiuma tridactylus* (sic, *A. tridactylum*) and *Sphargis coriacea* (= *Dermochelys coriacea*). It is based mostly on earlier American literature, most notably that of DeKay (1842) and, thus, includes numerous taxa absent from Ontario. Other early works from the area, based on actual observations, include that of Small and Lett (1884), which summarized the work of ornithologist William L. Scott and entomologist and botanist William H. Harrington (1852–1918), one of the founding members and an early president of the Ottawa Field Naturalists' Club (Brunton 2004), and recorded information on 12 species in the province. In another early publication, Latchford (1887) documented the salamanders occurring near Ottawa. Other works at least mentioning some local amphibians and reptiles have been summarized by Rowell (2012).

I here wish to draw attention to another early publication which has the distinction of having provided what appears to be the first purported comprehensive list of Ontario amphibians and reptiles. "List of Reptilia of Ontario" was published in *The Canadian Sportsman and Naturalist*, Vol. 1, No. 5 (Fig. 2), published on 14 May 1881 by John Garnier, M.D. of Lucknow, Bruce County, Ontario. The list is of interest not only for its early appearance but for its inclusion of a very large number of species (greater than the Ontario fauna recognized today) and because it includes the description of a new species of salamander, a junior synonym of *Necturus maculosus*, that appears to have been cited only once in the intervening 144 years. Further, Garnier himself was one of the most interesting personages in the history of Canadian herpetology and I take this opportunity to preface my discussion of his list of Ontario amphibians and reptiles with a summary of his life and his herpetological contributions.

John Hutchison Garnier

Garnier's life story has been recounted several times (e.g., Anonymous 1898a, 1898b, Mackenzie 1927; Johnston 1933a, 1933b; Caswell 1936; Dymond 1940) and he has also been

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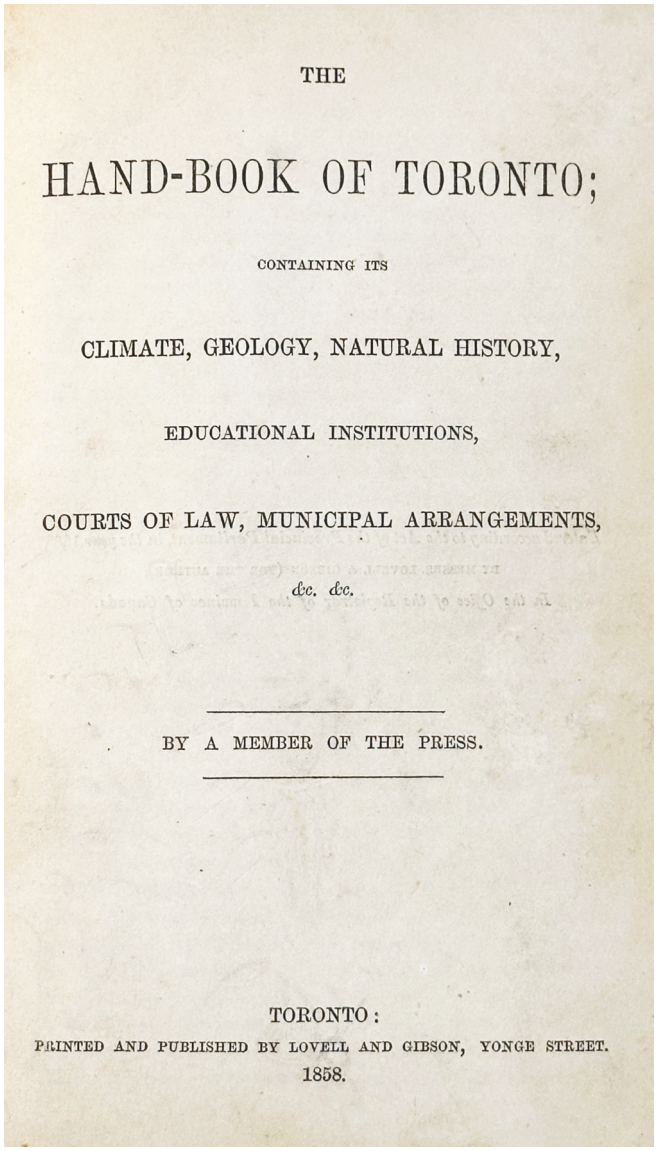


THE

HAND-BOOK OF TORONTO;

CONTAINING ITS

CLIMATE, GEOLOGY, NATURAL HISTORY,

EDUCATIONAL INSTITUTIONS,

COURTS OF LAW, MUNICIPAL ARRANGEMENTS,

&c. &c.

BY A MEMBER OF THE PRESS.

TORONTO:

PRINTED AND PUBLISHED BY LOVELL AND GIBSON, YONGE STREET.

1858.

Fig. 1. Title page from Ure's (1858) *The Hand-Book of Toronto*, which provided perhaps the first species list for any part of Ontario. Collection of author.

chronicled in the *Dictionary of Canadian Biography* (Roland 1990). Nonetheless, some mystery surrounds his origins. By most accounts, John Hutchison Garnier (Fig. 3) was born to a French Roman Catholic mother and a Huguenot father in Scotland in 1823 and received medical training in Paris and Dublin, obtaining his credentials from Trinity College, Dublin (Anonymous 1898b). However, Garnier's gravestone in South Kinloss Cemetery, Lucknow, Ontario (Fig. 4) bears the inscription:

Dr. Jean H.
Garnier
Born in Garneirville
Ireland 1823
Died
Feb. 1, 1898

and his Irish birth and given name Jean were also recorded in one of his obituaries (Anonymous 1898a). Garneirville, as inscribed on his gravestone, is certainly in error for Garnerville, which is now part of Strandtown, Belfast, County Down, Northern Ireland, and was the residence of Lieutenant-Colonel John Hutchinson Garner (1792–1878) (https://freepages.rootsweb.com/~rosdavies/genealogy/PLACENAMES/G.htm). Johnston (1933a, 1933b) reported that Garnier's father came from a long line of distinguished military men and the place and date of Garnier's birth, as well as his full name certainly suggest that Colonel Garner may have been his father or at least a relative. If so, and Garnier was born Garner, why did he change his surname? There were rumors that Garnier had left Ireland as the result of a duel (Johnston 1933a, 1933b). If this were the case, it might explain why he tried to obscure elements of his past (although John Hutchison Garnier does not seem like particularly deep cover if he were, in fact, born John Hutchinson Garner). Another theory is that he took on an entirely different identity when he moved to Canada and coopted part of his name and story from the well-respected Colonel Garner[1]. Or perhaps Garnier was an affectation assumed later in life, as his first known publication, in 1871, is signed "Dr. Garner." As to why his grave bears the name Jean instead of John, there is no obvious explanation. Garnier's wife Emily née Willis (1847–1932) lived for an additional 34 years in Lucknow (Johnston 1933a, 1933b) and one would have thought she would have ensured that he was memorialized under his right name.

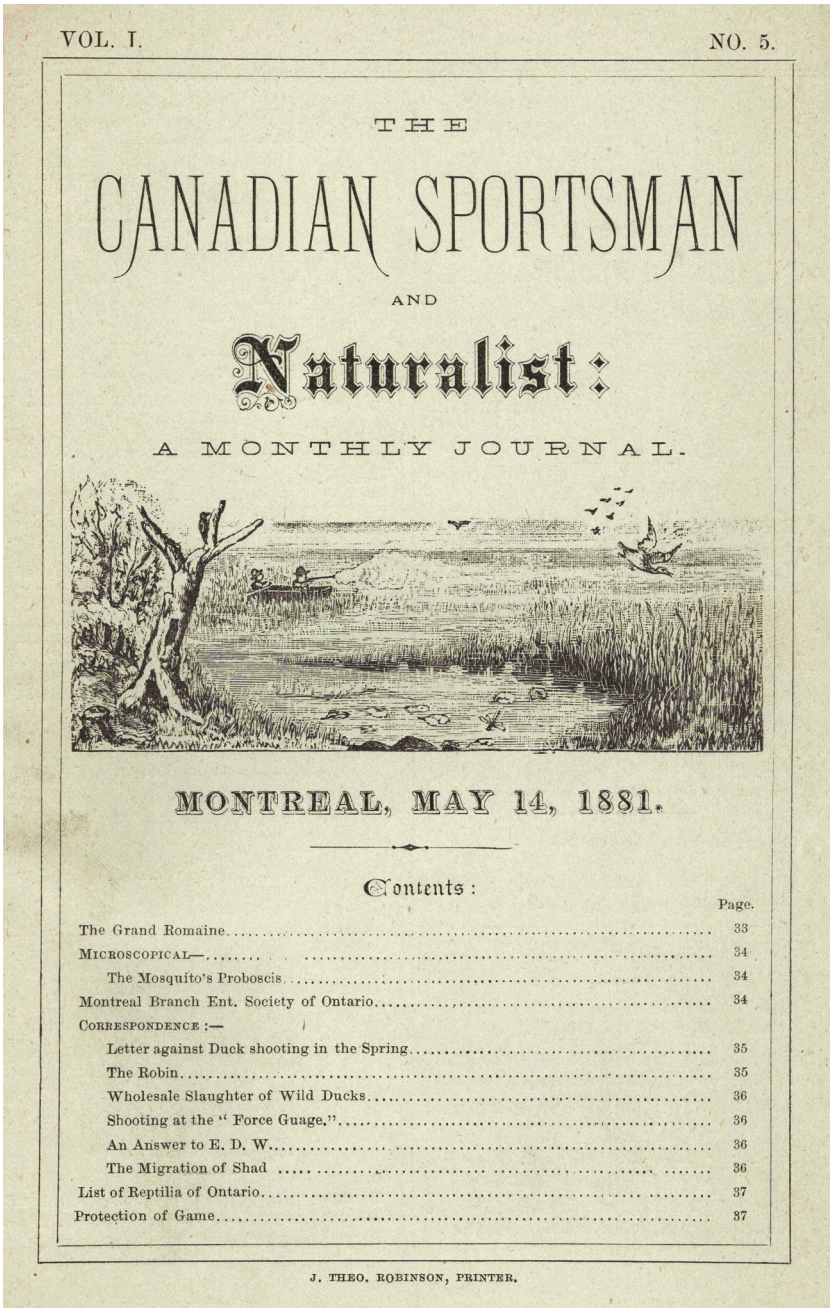
After leaving the United Kingdom, Garnier spent some time in India, Australia, and the Cape Colony before settling in Canada in the early 1850s, first in Hagersville (now in Haldimand County, south of Hamilton) and then around 1860 in Lucknow, Bruce County, near Lake Huron, where he remained for the rest of his life. As a physician in what was then a pioneer town on the outskirts of western Ontario, in an area known as the Queen's Bush, he had a busy practice and was known for his skill in obstetrics and oculism (ophthalmology). He was also apparently gruff and rude with his patients, traits that have been noted by all of his biographers. He published little in the medical field (e.g., Garner [sic?, see above] 1871) but contributed by translating foreign articles for publication in Canadian medical journals (Johnston 1933a, 1933b).

[1] A Garner family scandal was made public in 1873, when Harriet Howe (initially reported as Hull), working a pianist in a Newark, New Jersey saloon "where she entertained bawds and bacchanalian devotees," was jailed as part of a round-up at that establishment. She claimed to be the daughter of Colonel John Hutchinson Garner and to have fallen on hard times after her ne'er do well husband abandoned her (The Ogdensburg Journal, 31 March 1873 p. 2, as first reported in The Newark Advertiser of 21 March 1873). Eventually she was rescued by her brother "a dashing young fellow, fresh from Ashantee, whither he had gone as a volunteer with Sir Garnet Wolseley" (Chicago Weekly Post and Mail, August 13, 1874, p. 1), a reference to the Third Ashanti War. Harriet was one of seven known children of Colonel J.H. Garner, none of whom were our J.H. Garnier.

Much of Garnier's time and effort was spent on outdoor pursuits. He was an avid hunter and maintained both a flower garden of local renown and a collection of living reptiles and amphibians (Johnston 1933a, 1933b). He was greatly interested in vertebrate natural history and amassed a large collection of preserved vertebrate specimens and accumulated first-hand knowledge of animal behavior and life history. He published several small notes on birds (Garnier 1881a, 1881b, 1882a) and was acknowledged by Thomas McIlwraith (1824–1903), author of *The Birds of Ontario* (1886) and Montague Chamberlain (1844–1924) in *A Catalogue of Canadian Birds* (1887) as the source of various distributional records and natural history observations. However, based on the content of his private "cabinet" and his publishing activity, herpetology seems to have been Garnier's main scientific interest.

Aside from his biological and medical interests Garnier displayed talent in yet another field. He published a play *Prince Pedro*: *A Tragedy* (Garnier 1877; Fig. 5) and apparently completed two others — *Dandolo; A Tragedy in Five Acts* and *Moron, the Jew of Syracuse* (given as *Morgan the Jew* by Johnston 1933a, 1933b), and a work of biblical criticism, "The mistakes of Moses" (Roland 1990). Although the latter two plays were copyrighted in the United States in 1893 (Anonymous 1918), neither they, nor the biblical criticism were ever actually published.

Garnier's zoological writings were mostly confined to the 1880s, but he continued his medical practice until his own health prevented it, and he died on 1 February 1898 in Lucknow, leaving a widow, but no children (Anonymous 1898a, 1898b)[2]. Garnier's local fame in his lifetime was considerable and his obituary in the Toronto *Evening Star* (Anonymous 1898a; Fig. 6) referred to him as "a famous authority on reptiles" and noted that he "enjoyed considerable celebrity as a writer on Canadian natural history."


VOL. I. NO. 5.

THE

CANADIAN SPORTSMAN

AND

Naturalist:

A MONTHLY JOURNAL.

MONTREAL, MAY 14, 1881.

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J. THEO. ROBINSON, PRINTER.

Fig. 2. Title page of issue of *The Canadian Sportsman and Naturalist*, the short-lived periodical in which Garnier's "List of Reptilia of Ontario" was published. Collection of author.

Garnier's Natural History Cabinet

Garnier's home "museum" or natural history cabinet was center of his life in Lucknow, and he spared no expense in expanding it (Dymond 1940). Most of his Ontario herpetological specimens were obtained through his own field work at or near Lucknow, although he regularly visited the St. Clair River on the Michigan border and collected much there as well. Correspondents sent him material from elsewhere in Canada, most notably Quebec, Manitoba, and Nova Scotia, as well as from the United States. The collection was assembled between 1857 and 1890 and is documented in Garnier's still extant collection catalogue held in the Archives of the Royal Ontario Museum (File: SC80-2). Manitoba specimens were provided, in part, by the famous author, artist, and naturalist Ernest Thompson Se-

[2] However, according to Johnston (1933a, 1933b) there is an apocryphal story about Garnier being confronted by a young man who turned out to be his son from England, adding to the mystery of his personal life.

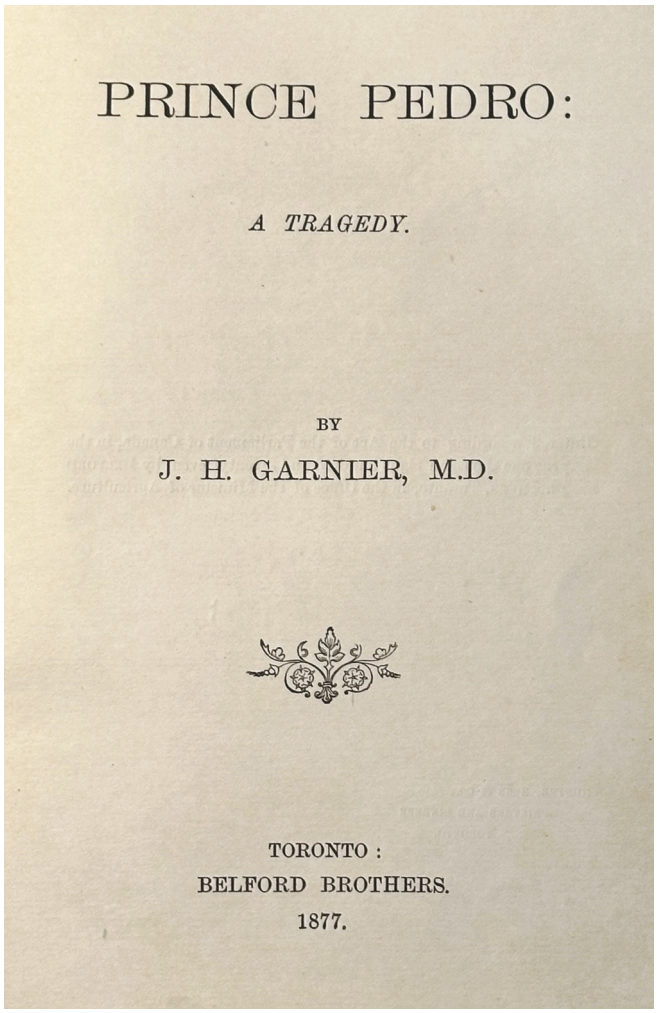
Fig. 3. John Hutchison Garnier in old age. This photograph appeared in his obituary published in *The Globe* on 5 March 1898. Photo courtesy of Jeff Rowell. Original from the John P. Robarts Research Library, University of Toronto.

ton (1860–1946). He obtained material from Pennsylvania and Texas from paleontologist and herpetologist Edward Drinker Cope (1840–1897), from Michigan from ornithologist Morris Gibbs (1856–1908) and from Minnesota from mammalogist Vernon Orlando Bailey (1864–1942). Other correspondents sent large numbers of specimens from Kansas, Texas, and Massachusetts, and Secretary of the Smithsonian, Spencer Fullerton Baird (1823–1887), exchanged material from many American States.

Garnier's collection was global in scope and was enriched by exchanges with naturalists from around the world (Mackenzie 1927), including some of the leading scientists of the day. Material from France and its possessions came from the herpetologist Fernand Lataste (1847–1934) and diplomat and naturalist Victor Collin De Plancy (1853–1924) and herpetologist Eduardo Boscá (1843–1924) exchanged specimens from China and Spain, respectively. Much material came from John Anderson (1833–1900; Fig. 7), Curator and Superintendent of the Indian Museum from 1865 to 1886, who sent animals from India, Burma, Egypt, Palestine, Persia, Yunnan, and Turkistan. Garnier's Pacific material came chiefly from Charles Walter DeVis (1829–1915) in Queensland, Australia and from New Zealand naturalist Thomas Frederick Cheeseman (1845–1923). A few specimens from Fiji entered his cabinet courtesy of his brother, also J. H. Garnier, who served as postmaster in Rarotonga in the Cook Islands[3]. One of

Fig. 4. Gravestone of J.H. Garnier in South Kinloss Cemetery, Lucknow, Ontario. From Findagrave.com.

[3] Interestingly, given the uncertainty of John Hutchison Garnier's birth name, this J.H. Garnier appears as J.H. Garner in at least one published source (Anonymous 1898c), although official records seem to consistently list him as Garnier. He apparently immigrated to Canada with his (presumably) older brother (Caswell 1936). His pathway from frontier Ontario to public service in the Cook Islands is not clear. He departed Rarotonga for Auckland in late 1898 after being dismissed, presumably for incompetence (Whimp 2008).



PRINCE PEDRO:

A TRAGEDY.

BY

J. H. GARNIER, M.D.

TORONTO :
BELFORD BROTHERS.
1877.

Fig. 5. Title page of *Prince Pedro: A Tragedy* (1877), the only one of Garnier's three plays to be published. Collection of author.

DR. GARNIER DEAD.

A Famous Authority on Reptiles Passes Away at Lucknow, Ontario.

LUCKNOW, Feb. 5.—The death occurred at Lucknow of Dr. Jean H. Garnier, one of the leading naturalists of Canada. He was a specialist in reptology, and had just finished reading the proofs of a publication entitled "The Reptiles of Canada," which was intended to be published in the spring.

The doctor was an Irishman, and a graduate of Trinity College, Dublin. He came to Canada over fifty years ago, and trapped and hunted with the Indians of the neighborhood where he settled for the love of adventure and his love of the study of nature.

The doctor leaves an exceedingly large collection, although at the time of the fire at the Toronto University, the University authorities purchased enough of his collection to take the place of that destroyed.

The doctor was a correspondent of Outing and other sporting papers, and enjoyed considerable celebrity as a writer on Canadian natural history. He enjoyed a large practice until age forced him to relinquish it. He leaves a widow.

Fig. 6. J.H. Garnier's obituary in the Toronto *Evening Star* of 5 February 1898. Unlike other sources, the information provided here is consistent with that on his gravestone.

Garnier's most active correspondents was the naturalist and former American Consul on Mauritius, Nicolas Pike (1818–1905; Fig. 8), who provided material from that island as well as from the vicinity of New York City and from Alabama and Florida. Pike was one of few people to have seen the now-extinct Round Island Boa, *Bolyeria multocarinatus*, which he wrote about in his spectacularly-titled book, *Subtropical Rambles in the Land of the Aphanapteryx* (1873), but he is also infamous for having introduced House Sparrows to New York in the 1850s.

Evidence of some of Garnier's reciprocal exchanges is verified in the published catalogues of institutions with which he dealt. Vertebrate material, including 51 snakes from Ontario (Rowell 2012), were exchanged to John Anderson at the Indian Museum and were subsequently listed in W.L. Sclater's (1891a, 1891b, 1892) *Catalogues* of that institution (Fig. 9), and material sent to Cope eventually appeared in Doris Cochran's (1961) list of herpetological types in the U.S. National Museum.

Garnier prepared or completed the catalogue of his collections in 1891 (Fig. 10) and in that same year he donated 473 specimens to the Biological Museum of the University of Toronto (Dymond 1940); another ~2000 specimens were purchased later the same year (the year of sale was incorrectly stated to be 1901 by Johnston 1933a, 1933b). Although representing all terrestrial vertebrate groups, the herpetological component was dominant. According to Mackenzie (1927:356) "his collection of reptilia was the most complete in the land in his time." The entire collection included 760 birds (mounted and study skins), 245 mammal specimens, 166 salamanders, 384 anurans, 538 snakes, and 360 other reptiles (Johnston 1933a, 1933b; Dymond 1940; Roland 1990). Of these, the majority were exotic, but there were from Ontario: 84 snakes (representing the currently recognized taxa *Regina septemvittata*, *Nerodia sipedon*, *Storeria dekayi*, *S. occipitomaculata*, *Thamnophis sirtalis*, *T. butleri* (see Table 1), *T. saurita*, *Lampropeltis triangulum*,

Fig. 7. Portrait bust from the grave monument in Dean Cemetery, Edinburgh, Scotland of John Anderson (1833–1900), Curator and Superintendent of the Indian Museum and one of Garnier's correspondents. © Stephencdickson. Licensed under the Creative Commons [https://en.wikipedia.org/wiki/Creative_Commons] Attribution-Share Alike 4.0 International [https://creativecommons.org/licenses/by-sa/4.0/deed.en] license.

Diadophis punctatus, *Opheodrys vernalis*, *Heterodon platirhinos*, *Pantherophis vulpinus*, *Crotalus horridus, Sistrurus catenatus*), 26 urodeles (*Ambystoma maculatum*, *A. jeffersonianum* complex, *Necturus maculosus*, *Desmognathus fuscus* [identity doubtful], *Plethodon cinereus*, *Notophthalmus viridescens*), and 131 frogs (*Lithobates pipiens*, *L. palustris*, *Aquarana catesbeiana*[4]; *A. clamitans*, *A. septentrionalis*, *Boreorana sylvaticus*, *Dryophytes versicolor, Pseudacris crucifer*, *P. triseriata,* and *Anaxyrus americanus*). These were added to the collection between 1877 and 1890 and were from localities in Ontario south of about 46.5°N.

Garnier's entire collection was subsequently transferred to the Royal Ontario Museum of Zoology in 1932[5]. The history of the collection is documented by Dymond (1940) and its significance noted by Roland (1990) and Cook (2007). Today, at least 843 specimens from the Garnier collection survive in the Royal Ontario Museum. However, of these, only 14 are Canadian with 12 from Ontario, representing *Pantherophis vulpinus* (2), *Aquarana clamitans* (1), *Aquarana septentrionalis* (2), *Pseudacris crucifer* (1), *Pseudacris triseriata* (1), *Ambystoma laterale* (1), *Necturus maculosus* (1), *Lampropeltis triangulum* (1), *Regina septemvittata* (1) and *Thamnophis sirtalis* (1). This number is likely an underestimate, however, as some of Garnier's material appears to have entered the collection with incomplete data (pers. comm., Amy Lathrop).

Garnier's Publications

I have been able to identify eight partly or wholly herpetological publications by John Garnier, as well as several dealing with birds and mammals. According to one of his obituaries (Anonymous 1898a) Garnier was a correspondent of *Outing* (presumably the American magazine of this name, 1881–1923) but I was unable to verify any contributions on amphibians and reptiles in this outlet. His first zoological publications appeared in *The Canadian Sportsman and Naturalist*, a short-lived (1881–1883) monthly serial published in Montreal and edited by William Couper (????–ca. 1890), a printer, publisher and taxidermist, who himself published fairly extensively on both systematic and economic entomology (Paradis 1982). It included mostly short articles relating to hunting, fishing, and natural history. The subscription price was one dollar, but the journal was subsidized by revenue from a variety of advertisements for photographers and sail and tent makers, clothes, coffee, disinfectants, scientific instruments, fishing tackle, glass eyes for taxidermy, and the Fish and Game Protection Club of the Province of Quebec. The journal ceased publication with nos. 11/12 of volume 3 in December 1883, having published a total of 288 pages, with pagination continuous between volumes. It is available online through Biodiversity Heritage Library and WorldCat lists hard copy holdings by about 25 institutions in Canada, the United States, and Australia.

Garnier's first publication in *The Canadian Sportsman* dealt with Robins (Garnier 1881a), arguing that they were delicious fare. This engendered a rebuttal and Garnier (1881d) returned to the topic again later in the same year. Another ornithological paper on the Red Crossbill followed (Garnier 1882a). He also published two papers on mammals, the first on deer "horns" (Garnier 1881c) also precipitated some re-

[4] Recognition of *Aquarana* and *Boreorana* follows Frost (2025), although some workers place these generic names in the synonymy of *Lithobates* or *Rana*.

[5] The Royal Ontario Museum of Zoology, created in 1912, was one of five separate museums originally comprising the Royal Ontario Museums. In 1955 the separate museums became divisions within the Royal Ontario Museum.

SUB-TROPICAL RAMBLES

IN

THE LAND OF THE APHANAPTERYX.

PERSONAL EXPERIENCES, ADVENTURES, AND WANDERINGS

IN AND AROUND

THE ISLAND OF MAURITIUS.

By NICOLAS PIKE.

NEW YORK:

HARPER & BROTHERS, PUBLISHERS,

FRANKLIN SQUARE.

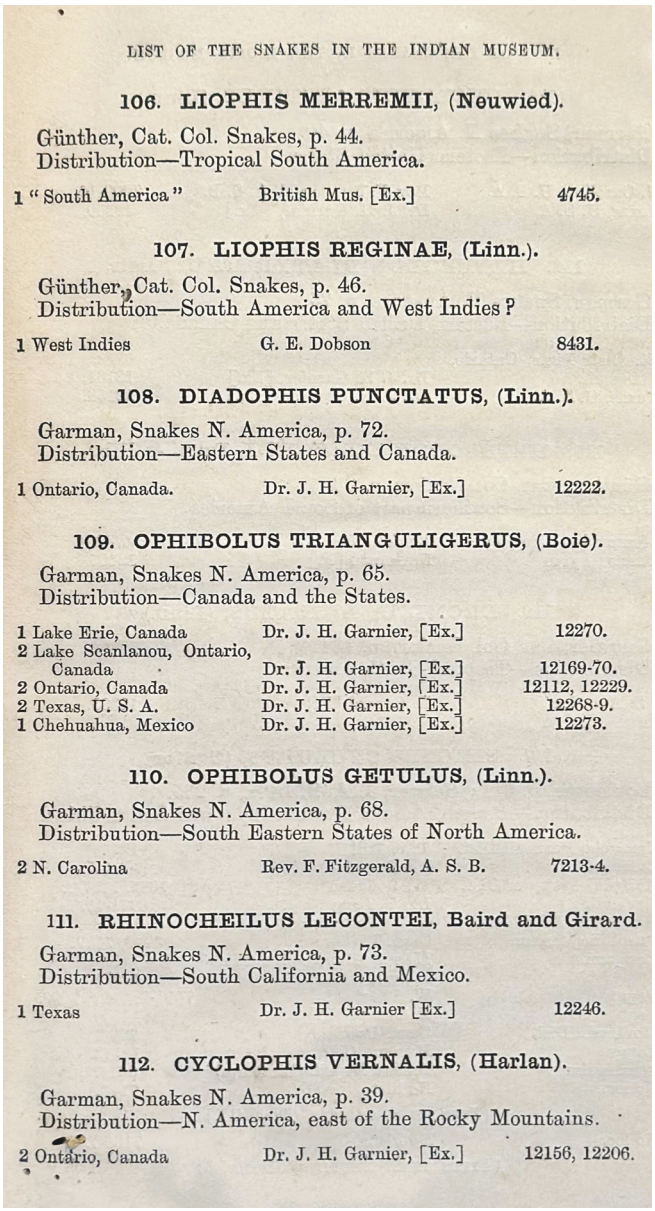
1873.

Fig. 8. Nicolas Pike (1818–1905), American consul on Mauritius and naturalist (left). Image from frontispiece of Pike's 1873 book *Sub-Tropical Rambles in the Land of the* Aphanapteryx (right). Pike's herpetological claims to fame include reporting on the now extinct Round Island Boa, *Bolyeria multocarinata*, and confirming that the red eft is the juvenile terrestrial stage of *Notophthalmus viridescens*. Collection of author.

sponses, including one from the editor. The second, on the Red Lynx (Garnier 1882d), was less controversial. His herpetological papers include a list of the reptiles and amphibians of Ontario (Garnier 1881b) — the main focus of this paper (see below), and two subsequent papers on the natural history of his hometown of Lucknow (Garnier 1882b), one covering all groups of terrestrial vertebrates, and another about the natural history of *Hyla Pickeringii* (syn. *Pseudacris crucifer*) (Garnier 1882c). The first of these augmented Garnier's (1881b) original provincial list of taxa, adding four additional species (Table 1). Perhaps his most widely cited herpetological contribution was a lengthy paper on the Mink Frog (Garnier 1883) in *The American Naturalist*. Unlike *The Canadian Sportsman and Naturalist*, this journal had, as it still does, a wide distribution and ensured that Garnier's observations would be seen by many. It was cited in various works including *Familiar Life in Field and Forest* (Matthews 1898) and was recently included in the anuran bibliography of Dodd (2022).

With the demise of *The Canadian Sportsman and Naturalist* in 1883, Garnier (1884) found new outlets for his work. The first such paper was on the taxonomy of the Massasauga and was published in the *Canadian Science Monthly*, another short-lived periodical that was published in Wolfville, Nova Scotia only from 1883 to 1885, first as the *Acadian Scientist* (through Volume 2, issue 2). In this paper he synonymized *Candisona* [sic, *Caudisona*] *edwardsii* with *C. tergemina* (the name he applied to *Sistrurus catenatus*). Uncharacteristically, this paper escaped the notice of both Klauber (1956) and Wright and Wright (1962) whose bibliographies are famously thorough.

Garnier published two papers in the *Transactions of the Canadian Institute.* The Canadian Institute, now the Royal Canadian Institute for Science, is the oldest scientific society in Canada. It was founded in 1849 and published a series of journals under different titles from 1852 to 1969. Garnier was elected a member of the Institute in March 1889, presumably in recognition of his publications in the *Transactions*. In the



LIST OF THE SNAKES IN THE INDIAN MUSEUM.

106. LIOPHIS MERREMII, (Neuwied).

Günther, Cat. Col. Snakes, p. 44.
Distribution—Tropical South America.

1 "South America"	British Mus. [Ex.]	4745.

107. LIOPHIS REGINAE, (Linn.).

Günther, Cat. Col. Snakes, p. 46.
Distribution—South America and West Indies?

1 West Indies	G. E. Dobson	8431.

108. DIADOPHIS PUNCTATUS, (Linn.).

Garman, Snakes N. America, p. 72.
Distribution—Eastern States and Canada.

1 Ontario, Canada.	Dr. J. H. Garnier, [Ex.]	12222.

109. OPHIBOLUS TRIANGULIGERUS, (Boie).

Garman, Snakes N. America, p. 65.
Distribution—Canada and the States.

1 Lake Erie, Canada	Dr. J. H. Garnier, [Ex.]	12270.
2 Lake Scanlanou, Ontario, Canada	Dr. J. H. Garnier, [Ex.]	12169-70.
2 Ontario, Canada	Dr. J. H. Garnier, [Ex.]	12112, 12229.
2 Texas, U. S. A.	Dr. J. H. Garnier, [Ex.]	12268-9.
1 Chehuahua, Mexico	Dr. J. H. Garnier, [Ex.]	12273.

110. OPHIBOLUS GETULUS, (Linn.).

Garman, Snakes N. America, p. 68.
Distribution—South Eastern States of North America.

2 N. Carolina	Rev. F. Fitzgerald, A. S. B.	7213-4.

111. RHINOCHEILUS LECONTEI, Baird and Girard.

Garman, Snakes N. America, p. 73.
Distribution—South California and Mexico.

1 Texas	Dr. J. H. Garnier [Ex.]	12246.

112. CYCLOPHIS VERNALIS, (Harlan).

Garman, Snakes N. America, p. 39.
Distribution—N. America, east of the Rocky Mountains.

2 Ontario, Canada	Dr. J. H. Garnier, [Ex.]	12156, 12206.

Fig. 9. Listing of some of the snakes exchanged to the Indian Museum in Sclater's (1891) *List of Snakes in the Indian Museum*. These include snakes from Ontario collected by Garnier himself and others from the United States and Mexico that he had obtained by exchange. Collection of author.

first paper Garnier (1888a) described a new *Necturus* from the Maitland River, Ontario as *Menobranchus Latastei* (see below). In the second, on "Snake poisons" (Garnier 1888b), he proposed a remedy of iodine of potash followed by sweet spirit of nitre for the treatment of the bite of the "Massissauga or *Caudisona Tergenina*." In the paper he also advocated for testing snakebite remedies on condemned prisoners! In addition, the Annual Report of the Canadian Institute for 1882–83 lists a presentation given by Garnier on 23 February 1883 on "The Poisonous Snakes of North America." Although this was never published, Roland (1990) indicated that a copy of the corresponding manuscript was preserved in box 27 of the J.L. Baillie Collection (ms. coll. 127) at the Thomas Fisher Rare Book Library of the University of Toronto.

Garnier's last known published herpetological work was a list of 33 Ontario snake species (Garnier 1894) published in the Toronto newspaper *The Empire*, one of the precursors of the national newspaper, *The Globe and Mail* (see below). Garnier's interest in herpetology, however, continued throughout life and he presumably intended to publish a book-length work "The Reptiles of Ontario." One of his obituaries (Anonymous 1898a) stated that he had just finished reading proofs for the book, which was to be published in the Spring of that year. This never materialized, although the manuscript exists in the archives of the Royal Ontario Museum (Archives SC80).

Garnier's Lists of Ontario Amphibians and Reptiles

Garnier's main contribution to the herpetology of Ontario was "List of Reptilia of Ontario" (Fig. 11) published in *The Canadian Sportsman and Naturalist.* The information provided with each entry was limited, sometimes giving one or more localities or providing a brief statement about the features or ecology of the animal. The "List" included an impressive 65 species (and varieties) of amphibians and reptiles. Shortly thereafter he added four more species to the Ontario fauna in his paper on the natural history of Lucknow (Garnier 1882b): *Chorophyllus triseriatus*, *Amyda mutica*, *Amblystoma Jeffersoni* and *Scotophis Allighaniensis* (Table 1). These 69 taxa compare to the 48 species and subspecies recognized by Logier (1937, 1939) and the 54 taxa (including 50 full species) of recent and historically present amphibians and reptiles recognized today (ORAA 2023)[6].

Garnier's knowledge of taxonomy was limited by his available resources. Having no curated collections with which to compare his own material, his determinations would have been dependent on the literature available to him, likely papers sent to him by the correspondents with whom he exchanged material. It is evident that for snakes, Garnier largely followed the taxonomy of Baird and Girard (1853; Fig. 12),

[6] The boundaries of Ontario were significantly different in 1881 than they are today, and the current provincial borders were not achieved until 1912. At the time, northern Ontario was part of the North-West Territories and part of what is today far western Ontario was in the District of Keewatin. Although all of the 54 species and subspecies (exclusive of unnamed unisexual ambystomatids) currently recognized as present or historically present in Ontario occurred within the boundaries of the province in Garnier's time, his collection and his knowledge of the herpetofauna from correspondents was concentrated on the settled parts of the province where the majority of the species occur. *Pseudacris maculata* and the subspecies *Notophthalmus viridescens louisianensis*, *Thamnophis sirtalis parietalis*, and *Chrysemys picta belli* are restricted to areas beyond the scope of Garnier's personal knowledge and two other taxa, *Ambystoma texanum* and *Nerodia sipedon insularum*, are restricted in Ontario (and Canada) to Pelee Island, which had not yet been herpetologically investigated in Garnier's time (King et al. 1997).

Table 1. Nominal taxa in Garnier (1881b) "List of Reptilia of Ontario" (see also Figure 11) and additions from Garnier (1882b) "Notes on the natural history of Lucknow, Ont." Additions of 1882 are preceded by as asterisk (*). Garnier's names are given verbatim (including question marks, when present), with my additions in square brackets ([ ]). Current Name is the name corresponding to Garnier's name and does not necessarily reflect the actual identity of taxon referred to. In the column "ONT," X indicates that the named taxon is known to occur (or to have occurred in historical times) in Ontario. The right-hand column gives the likely identity of the taxon based on information about distribution or appearance provided by Garnier, as well as other remarks.

Garnier (1881)	Current Name	ONT	Probable Identity; Remarks
Chelopus insculptus	*Glyptemys insculpta*	X	*Glyptemys insculpta*
Nanemys gutatus [sic]	*Clemmys guttata*	X	*Clemmys guttata*
Emys meleagris	*Emydoidea blandingii*	X	*Emydoidea blandingii*
Chrysemys picta	*Chrysemys picta picta*	—	*Chrysemys picta marginata*; *C. p. picta* is extralimital; *C. p. belli* occurs in western Ontario and was likely unknown to Garnier.
[*C.*] *P.* var. *marginata*	*Chrysemys picta marginata*	X	*Chrysemys picta marginata*
Malacoclemys [sic] *geographicus*	*Graptemys geographica*	X	*Graptemys geographica*
M. [sic] *pseudo-geographicus*	*Graptemys pseudogeographica*	—	*G. geographica*; *G. pseudogeographica* is extralimital. Considered a variety of *geographica* by Garnier.
Aromochelys odoratus	*Sternotherus odoratus*	X	*Sternotherus odoratus*
Chelydra serpentina	*Chelydra serpentina*	X	*Chelydra serpentina*
Aspidonectes spinifer	*Apalone spinifera*	X	*Apalone spinifera*
**Amyda mutica* (?)	*Apalone mutica*	—	*A. spinifera*; *A. mutica* is extralimital
Eumeces fasciatus	*Plestiodon fasciatus*	X	*Plestiodon fasciatus*
E. septentrionalis	*Plestiodon septentrionalis*	—	*P. fasciatus*; *P. septentrionalis* is extralimital.
E.. anthracinus	*Plestiodon anthracinus*	—	*P. fasciatus*; *P. anthracinus* is extralimital.
Heterodon platyrhinus [sic] var. *niger*	*Heterodon platirhinos*	X	Melanistic form of *H. platirhinos*; The species is now extirpated from Garnier's localities of Toronto and Port Hope (COSEWIC 2021; ORAA 2023).
Nerodia sipedon	*Nerodia sipedon*	X	*Nerodia sipedon*
N. erythrogaster	*Nerodia erythrogaster*	—	*Nerodia sipedon*[7]
N. niger	*Nerodia sipedon*	X	Considered as a likely synonym of *N. sipedon* by Garnier.
Regina rigida	*Liodytes rigida*	—	*Regina septemvittata*; *L. rigida* is extralimital.
R. leberis (?)	*Storeria occipitomaculata*	X	*Regina septemvittata*[8]
Storeria occipito-maculata	*Storeria occipitomaculata*	X	*Storeria occipitomaculata*
S. DeKayi	*Storeria dekayi*	X	*Storeria dekayi*
Eutainia [sic] *saurita*	*Thamnophis saurita septentrionalis*	X	*Thamnophis saurita septentrionalis*
E. radix	*Thamnophis radix*	—	*Thamnophis butleri*; Garnier's record is the first record of *T. butleri* from Ontario (see text).
E. sirtalis	*Thamnophis sirtalis sirtalis*	X	
E. dorsalis	*Thamnophis sirtalis dorsalis*	—	*T. s. sirtalis*; *T. s. dorsalis* is extralimital.
E. ordinata	*Thamnophis sirtalis sirtalis*	X	*T. s. sirtalis*; Considered by Garnier as the young of *E. dorsalis*.

Garnier (1881)	Current Name	ONT	Probable Identity; Remarks
E. ordenoides [sic]	*Thamnophis ordinoides*	—	*T. s. sirtalis*; *T. s. ordinoides* is extralimital.
E. parietalis	*Thamnophis sirtalis parietalis*	X	Misidentification for *T. s. sirtalis*; *T. s. parietalis* occurs only west of 87°W in Ontario, whereas Garnier's specimen was from Magnetewan (79.64°W).
E. vagrans	*Thamnophis elegans vagrans*	—	*T. s. sirtalis*; *T. s. vagrans* is extralimital.
E. elegans	*Thamnophis elegans elegans*	—	*T. s. sirtalis*; *T. s. elegans* is extralimital.
E. Pickeringii	*Thamnophis sirtalis pickeringii*	—	*T. s. sirtalis*; *T. s. pickeringii* is extralimital.
E. obscura	*Thamnophis sirtalis sirtalis*	X	Considered by Garnier "scarcely admissible, even as a variety."
Bascanium constrictor (?)	*Coluber constrictor*	X	*Pantherophis alleghaniensis spiloides*; Garnier's reference to this as a "Black Snake" and the stated locality of Ganonoque are consistent with *Pantherophis* but not *C. constrictor*.
Scotophis vulpinus	*Pantherophis vulpinus*	X	Garnier's localities of Kent County and Mud Creek are consistent with the distribution of the species, but his report of a specimen 7 feet 11 inches in length is exaggerated.
Cyclophis vernalis	*Ophyodrys vernalis*	X	*Ophyodrys vernalis*
Diadophis punctatus	*Diadophis punctatus edwardsi*	X	*Diadophis punctatus edwardsi*
D. punctatus var. *amabilis*	*Diadophis punctatus amabilis*	—	*D. p. edwardsi*; *D. p. amabilis* is extralimital; the subspecies was considered doubtfully distinct by Garnier.
Ophibolus doliatus var. *triangulus*	*Lampropeltis triangulum*	X	*Lampropeltis triangulum*
Crotalus horridus	*Crotalus horridus*	X	Seen "on the mountain [the Niagara Escarpment] a few miles east of Hamilton" in 1859, one collected "not far from Niagara" in 1873.
Crotalophorus tergemina	*Sistrurus tergeminus*	extir-pated	*Sistrurus catneatus*; *S. tergeminus* is extralimital. Garnier's record from Tilberry Marsh is presumably near Tilbury, in an area from which the species has been extirpated.
**Scophotis Allighaniensis* [sic]	*Pantherophis alleghaniensis spiloides*	X	Reported from Essex but not present in Garnier's own collection.
Rana helecina [sic]	*Lithobates pipiens*	X	*Lithobates pipiens*
R. pulustris [sic]	*Lithobates palustris*	X	*Lithobates palustris*
R. clamitans	*Aquarana clamitans*	X	*Aquarana clamitans*
R. [*clamitans*] var. *cæruleus*[9]	*Aquarana clamitans*?	X	Presumably intended as *R. clamitans* var. *caeruleus* "introduced as a local variety." Whether intended as a subspecific name or a color variety is unclear. See text.
R. Catesbeyana [sic]	*Aquarana catesbeiana*	X	*Aquarana catesbeiana*
R. [*Catesbeyana*] var. *rufus*	*Aquarana catesbeiana*?	X	Presumably intended as *R. catesbeyana* var. *rufus* "introduced as a larger variety" from St. Clair Flats and Bruce County. Whether intended as a subspecific name or a color variety is unclear. See text.
R. sylvatica	*Boreorana sylvatica*	X	*Boreorana sylvatica*
R. sylvatica var. *Cantabrigensis*	*Boreorana sylvatica*	X	*Boreorana sylvatica*
Pelobates Americanus	previously unrecorded replacement name	X	*Aquarana septentrionalis*; Garnier states "same as *R. circulosa*, &c. Hoosier Frog" [= *Lithobates areolatus*] and Garnier (1883) makes it clear that he considered *areolatus* and *septentrionalis* to be synonyms.
Hyla versicolor	*Dryophytes versicolor*	—	*Dryophytes versicolor*

Garnier (1881)	Current Name	ONT	Probable Identity; Remarks
H. Andersonii	*Dryophytes andersonii*	X	Intended identity uncertain, although Garnier's text suggested that he considered this to be a color morph of *Dryophytes versicolor. D. andersonii* is extralimital.
H. Pickeringii	*Pseudacris crucifer*	—	*Pseudacris crucifer*
Acris Gryllus var. *crepitans*	*Acris crepitans*	X	*Pseudacris* sp.?; *Acris blanchardi*, now extirpated (ORAA 2023), was the only cricket frog in Ontario and was limited to the extreme southwest of the province. Garnier's (18821b, 1882c) statements about its call suggest *Pseudacris triseriatus* or *P. crucifer*.
Acris gryllus var. *gryllus*	*Acris gryllus*	—	*Pseudacris* sp.?; See above. *Acris gryllus* is extralimital.
Bufo lentiginosus var. *Americanus*	*Anaxyrus americanus*	—	*Anaxyrus americanus*
B. lentiginosus var. *niger*	*Anaxyrus americanus* ?	X	This name has not been noted in the literature. It likely refers to a blackish color morph of *A. americanus*. Whether intended as a subspecific name or a color variety is unclear. See text.
**Chorophyllus* [sic] *triseriatus*	*Pseudacris triseriata*	X	*Pseudacris triseriata*
Diemyctylus viridescens	*Notophthalmus viridescens viridescens*	X	*Notophthalmus viridescens viridescens*
D. mineatus [sic]	*Notophthalmus viridescens viridescens*	X	Garnier used the common name Red Eft for *D. mineatus*, which he regarded as distinct from *D. viridescens*.[10]
Desmognatus [sic] *niger*	*Desmognathus fuscus*	X	Identity unknown. *Desmognathus fuscus* is known only from the Niagara area. Garnier's specimen was received from "Mr. Brodie, Toronto" but it is unclear if Toronto is the source of the specimen. Described simply as "Black Salamander," an ambystomatid might be implied.
Plethodon erythronotus	*Plethodon cinereus*	X	*Plethodon cinereus*
P. var. *cinereus*	*Plethodon cinereus*	X	*Plethodon cinereus*
Amblystoma punctatum	*Ambystoma maculatum*	X	*Ambystoma maculatum*
Necturus lateralis; *menobranchus*	*Necturus maculosus*	X	*Necturus maculosus*
N. Huronensis	*Necturus maculosus*	X	Explicitly described as a new species. Only two specimens obtained, no locality given. See text for discussion.
**Amblystoma Jeffersoni* [sic]	*Ambystoma jeffersonianum*	X	Likely *A. laterale* as the similar *A. jeffersonianum* does not occur in Hyde Park (London, Ontario), the locality signaled by Garnier.

[7] *Nerodia erythrogaster* was not listed among possible Ontario species by MacCulloch (2002) or ORAA (2023). However, it occurs in southern Michigan with records from Oakland County, approximately 40 km west of Lake St. Clair. Garnier's single locality was somewhere on the Canadian side of the lake.

[8] *Coluber leberis* Linnaeus, 1758 is a senior synonym of *Storeria occipitomaculata* (Storer, 1839) but was suppressed by the ICZN (Anonymous 1962). Baird and Girard (1853), however, applied the name to the Queensnake and this is certainly the usage employed by Garnier.

[9] Although in this instance and *R.* var. *rufus* below, no species name is given in Garnier's listing, it is implicit that the species immediately above is implied.

[10] The entire life cycle of *Nothophthlmus viridescens* was not elucidated until the work of Kelly (1878), of which Garnier was likely not aware. Although the terrestrial eft stage and the aquatic adult were suspected to be conspecific for several decades prior (Gage 1891), this was not universally accepted until after Garnier's Ontario *List* was published. Garnier's correspondent Nicolas Pike (see text) was instrumental in confirming the transformation between life stages (Pike 1886).

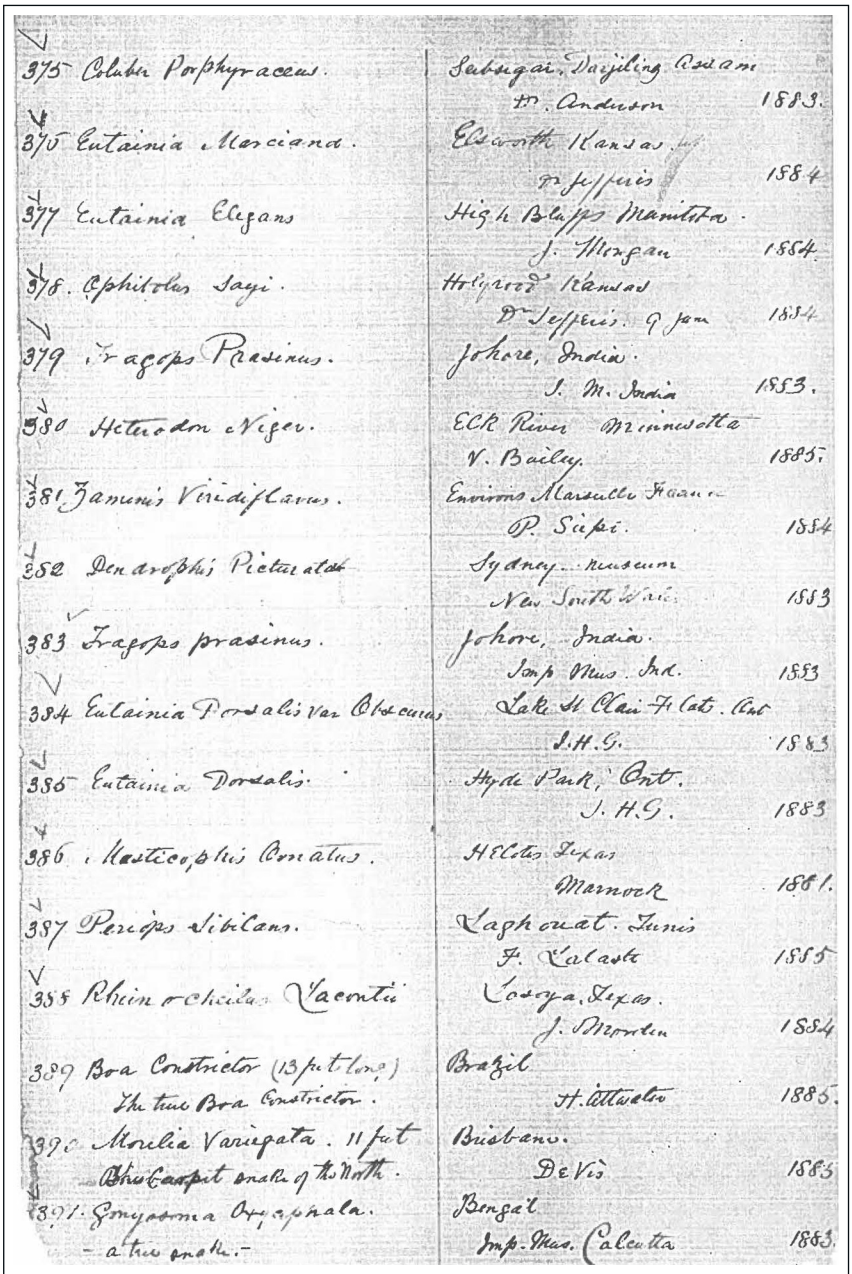

375 Coluber Porphyraceus. — Sabugar, Darjiling Assam — Dr. Anderson — 1883.
376 Eutainia Marciana. — Elsworth Kansas — Dr Jeffries — 1884
377 Eutainia Elegans — High Bluffs Manitoba — J. Morgan — 1884.
378. Ophibolus Sayi. — Holyrood Kansas — Dr Jeffries. 9 jan — 1884
379 Tragops Prasinus. — Johore, India. — S. M. India — 1883.
380 Heterodon Niger. — ECR River Minnesotta — V. Bailey. — 1885.
381 Zamenis Viridiflavus. — Environs Marseille France — P. Sapi. — 1884
382 Dendrophis Pictus adult — Sydney ... museum — New South Wales — 1883
383 Tragops prasinus. — Johore, India. — Imp Mus. Ind. — 1883
384 Eutainia Dorsalis Var Obscura — Lake St Clair Flats. Ont — J.H.G. — 1883
385 Eutainia Dorsalis. — Hyde Park, Ont. — J. H.G. — 1883
386 Masticophis Flagellum. — Helotes Texas — Marnock — 1881.
387 Periops Sibilans. — Kaphouat. Tunis — F. Lataste — 1885
388 Rhinocheilus Lecontei — Cosoya, Texas. — J. Morden — 1884
389 Boa Constrictor (13 feet long) The true Boa Constrictor. — Brazil — H. Ottawelle — 1885.
390 Morelia Variegata. 11 feet Blue Carpet snake of the North. — Bristane. — De Vis — 1883
391. Gongylosoma Oxycephala. — a true snake. — Bengal — Imp. Mus. Calcutta — 1883.

Fig. 10. Page from Garnier's 1891 catalogue of his collection of non-venomous snakes that were sold to the University of Toronto in that year. This page includes several Ontario specimens collected by Garnier (384, 385) as well as exotic snakes received from international correspondents including John Anderson in India (375, 383, 391), Walter De Vis in Australia (390) and Fernand Lataste in France (387). Year dates of acquisition are indicated at the right of the page. From the Archives of the Royal Ontario Museum, courtesy of Amy Lathrop.

but he also mentioned Edward Drinker Cope (1840–1897) and David Starr Jordan (1851–1931) in his "List." Jordan's (1880) popular *Manual of the Vertebrates of the Northern United States*, then in its third edition, would have been the latest work to effectively cover the herpetofauna of Ontario and so, may have been of particular use to him, although it is not explicitly cited by Garnier. Because of his reliance on Baird and Girard (1853), which was written before many groups — such as garter snakes — had been critically reviewed, Garnier had an inflated list of names that he thought might apply to his local fauna.

Making sense of Garnier's taxa is not straight-forward. In several cases (*Nerodia niger*, *Eutainia ordinata*, *E. obscura*, and *Diadophis punctatus* var. *amabilis*) he expressed doubts about the validity of the taxa he listed. Another issue involves his use of the term variety (var.). In several cases he clearly employed the term in the sense of a subspecies (e.g. *Bufo lentiginosus* var. *americanus* or *Acris Gryllus* var. *crepitans*), following usage of the time. However, in three cases he seemingly uses the term "var." to describe a color variety. The alternative interpretation is that Garnier coined three new subspecific names: *B. lentiginosus* var. *niger*, *Rana* [*clamitans*] var. *cæruleus*, and *Rana* [*Catesbeyana*] var. *rufus*. None of these combinations have otherwise appeared in the systematic literature and, if considered validly described, these nomina would be junior synonyms of *Anaxyrus americanus*, *Aquarana clamitans* and *Aquarana catesbieana*, respectively. Most other "extraneous names" are examples of the misapplication of the names of extralimital taxa or the listing of two or more synonyms for a single taxon.

Stripped of these additional "false positives" Garnier (1881b, 1882b) did fairly well at building the first list of Ontario amphibians and reptiles. He listed eleven chelonians, which included all of the nine taxa currently known for Ontario except *Chrysemys picta belli* (see footnote 6). Two of the three lizards he recorded were extralimital, but he did list the one species present in Ontario, *Plestiodon fasciatus*.

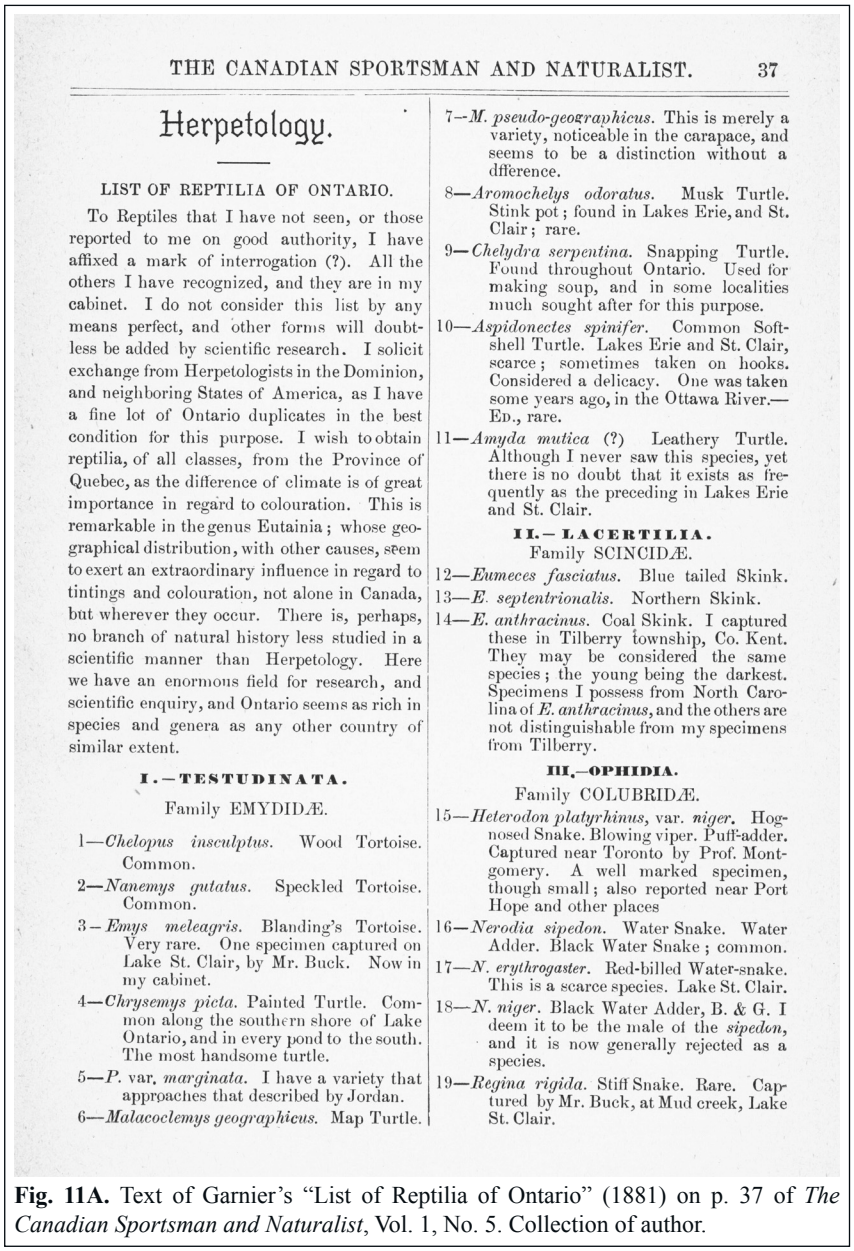
Garnier listed 28 species and varieties of snakes, whereas only 18 taxa (16 full species) are or historically were present. Eleven of his snakes were *Eutainia* [sic, *Eutaenia*] (= *Thamnophis*), a genus actually represented in Ontario by four taxa, only three of which, *T. s. sirtalis*, *T. s. parietalis* and *T. saurita,* were known at the time. All were included in his list but *T. s. parietalis* occurs only north and west of the area known to Garnier, and based on the locality he cited, he actually applied this name to specimens of the nominotypical form. Rowell (2012) hypothesized that Garnier's record of *T. radix*, an extralimital species, was actually the first Ontario record of the similar *T. butleri* (Cope, 1889), a species not yet described. Choquette (2011) confirmed this, verifying that USNM [U.S.

National Museum of Natural History] 10532, a "*T. radix*" from Mitchell's Bay sent to the Smithsonian by Garnier was, in fact, *T. butleri*. Garnier accounted for nearly all of other snakes known from the province, although *Regina septemvittata* was misidentified as the extralimital *Liodytes rigida* and the snake he thought was *Coluber constrictor* was actually *Pantherophis alleghaniensis spiloides*, a taxon he added to his list in 1882. The only other omission was *Nerodia sipedon insularum* (Conant and Clay, 1937), which would not be described for more than half a century.

For frogs, Garnier's 16 entries in 1881 account for nine of the province's 13 species, with a tenth, *Pseudacris triseriata* added in 1882. Two of the missing species had not yet been described: *Anaxyrus fowleri* (Hinckley, 1882) and the now extirpated *Acris blanchardi* (Harper, 1947), and the third, *Pseudacris maculata*, is known only from the northwest of the province (north of approximately 48° N). A glance at Garnier's (1881b) list suggests that he omitted *Aquarana septentrionalis*, the Mink Frog, but it is there under *Pelobates Americanus*, a name introduced in this paper and otherwise absent from the systematic literature. However, Garnier stated that this was "same as *R. circulosa*, &c. Hoosier Frog" (a synonym and common name, respectively, of *Lithobates areolatus*, which Garnier mistakenly regarded as synonymous with *A. septentrionalis*; see Garnier 1883).

Garnier's performance for salamanders was the poorest of all groups, with only five of 13 taxa[11] identified in his 1881 and 1882 papers. Those he did not find include one subspecies that was both undescribed in Garnier's time and restricted to the part of the province with which he was unfamiliar, *Notophthalmus viridescens louisianensis* (Wolterstorff, 1914), three species with extremely limited distributions in the province (*Desmognathus fuscus*, *D. ochrophaeus* and *Ambystoma texanum*), the last two of which were not recorded in Ontario until 1985 and 2004, respectively (Bogart et al. 1985; COSEWIC 2018), and *Ambystoma tigrinum*, known from two doubtful records from Pont Pelee and Pelee Island (Ngo et al. 2009; ORAA 2023). Garnier (1881b) did list a synonym of *Desmognathus fuscus*, but the locality and description provided make it very unlikely that this was the actual species intended. In 1882 Garnier added *Amblystoma Jeffersoni* (= *Ambystoma jeffersonianum*) to the provincial list, but this was almost certainly *A. laterale* based on the locality he provided. Most interestingly, Garnier (1881b) included in his list of salamanders a description of a new species of *Necturus*, which has gone virtually unnoted in the literature (see below).

To evaluate Garnier's effectiveness in documenting the herpetofauna, it is most important to count not the different names he used, but rather the species implied on the basis of his locality records and meager descriptions; in other words, the taxa we can infer from the vantage point of our modern



THE CANADIAN SPORTSMAN AND NATURALIST. 37

Herpetology.

LIST OF REPTILIA OF ONTARIO.

To Reptiles that I have not seen, or those reported to me on good authority, I have affixed a mark of interrogation (?). All the others I have recognized, and they are in my cabinet. I do not consider this list by any means perfect, and other forms will doubtless be added by scientific research. I solicit exchange from Herpetologists in the Dominion, and neighboring States of America, as I have a fine lot of Ontario duplicates in the best condition for this purpose. I wish to obtain reptilia, of all classes, from the Province of Quebec, as the difference of climate is of great importance in regard to colouration. This is remarkable in the genus Eutainia; whose geographical distribution, with other causes, seem to exert an extraordinary influence in regard to tintings and colouration, not alone in Canada, but wherever they occur. There is, perhaps, no branch of natural history less studied in a scientific manner than Herpetology. Here we have an enormous field for research, and scientific enquiry, and Ontario seems as rich in species and genera as any other country of similar extent.

I.—TESTUDINATA.

Family EMYDIDÆ.

1—*Chelopus insculptus.* Wood Tortoise. Common.

2—*Nanemys gutatus.* Speckled Tortoise. Common.

3—*Emys meleagris.* Blanding's Tortoise. Very rare. One specimen captured on Lake St. Clair, by Mr. Buck. Now in my cabinet.

4—*Chrysemys picta.* Painted Turtle. Common along the southern shore of Lake Ontario, and in every pond to the south. The most handsome turtle.

5—*P.* var. *marginata.* I have a variety that approaches that described by Jordan.

6—*Malacoclemys geographicus.* Map Turtle.

7—*M. pseudo-geographicus.* This is merely a variety, noticeable in the carapace, and seems to be a distinction without a difference.

8—*Aromochelys odoratus.* Musk Turtle. Stink pot; found in Lakes Erie, and St. Clair; rare.

9—*Chelydra serpentina.* Snapping Turtle. Found throughout Ontario. Used for making soup, and in some localities much sought after for this purpose.

10—*Aspidonectes spinifer.* Common Soft-shell Turtle. Lakes Erie and St. Clair, scarce; sometimes taken on hooks. Considered a delicacy. One was taken some years ago, in the Ottawa River.—Ed., rare.

11—*Amyda mutica* (?) Leathery Turtle. Although I never saw this species, yet there is no doubt that it exists as frequently as the preceding in Lakes Erie and St. Clair.

II.—LACERTILIA.

Family SCINCIDÆ.

12—*Eumeces fasciatus.* Blue tailed Skink.

13—*E. septentrionalis.* Northern Skink.

14—*E. anthracinus.* Coal Skink. I captured these in Tilberry township, Co. Kent. They may be considered the same species; the young being the darkest. Specimens I possess from North Carolina of *E. anthracinus*, and the others are not distinguishable from my specimens from Tilberry.

III.—OPHIDIA.

Family COLUBRIDÆ.

15—*Heterodon platyrhinus*, var. *niger.* Hog-nosed Snake. Blowing viper. Puff-adder. Captured near Toronto by Prof. Montgomery. A well marked specimen, though small; also reported near Port Hope and other places

16—*Nerodia sipedon.* Water Snake. Water Adder. Black Water Snake; common.

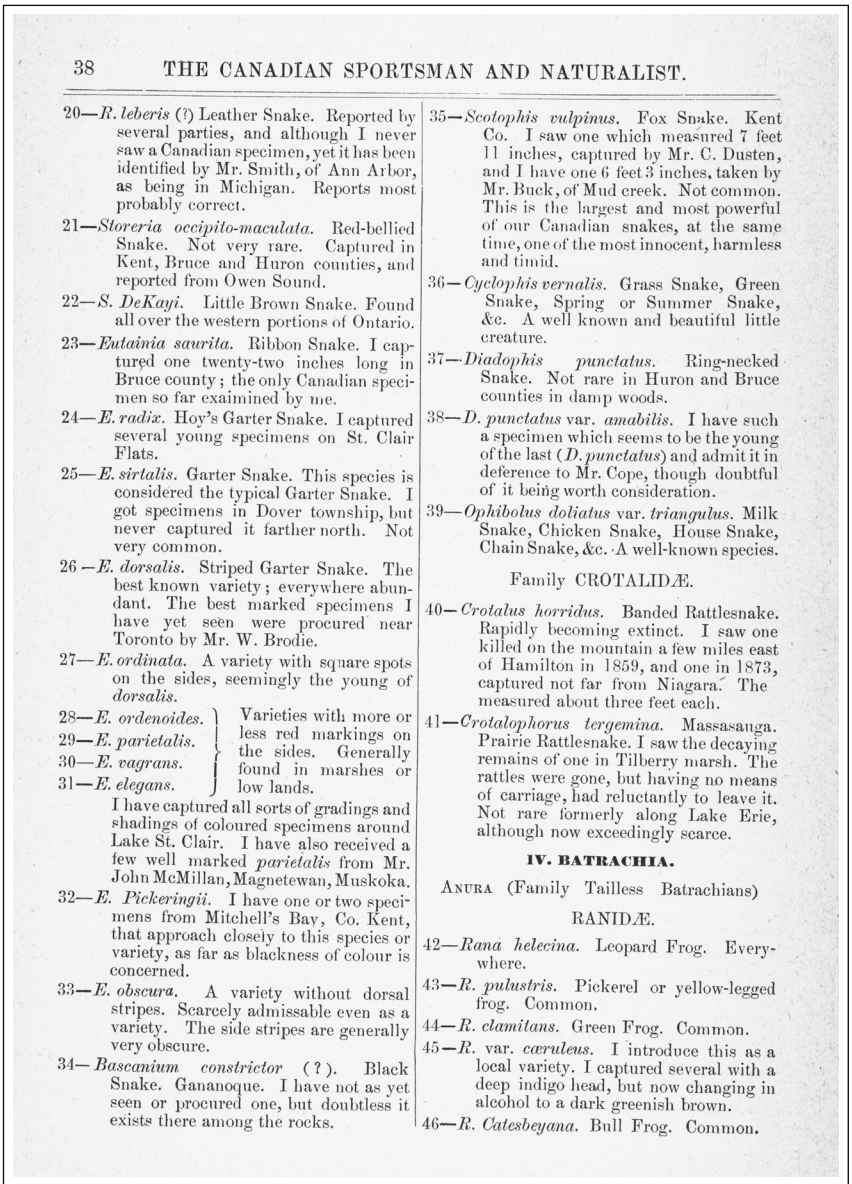
17—*N. erythrogaster.* Red-billed Water-snake. This is a scarce species. Lake St. Clair.

18—*N. niger.* Black Water Adder, B. & G. I deem it to be the male of the *sipedon*, and it is now generally rejected as a species.

19—*Regina rigida.* Stiff Snake. Rare. Captured by Mr. Buck, at Mud creek, Lake St. Clair.

Fig. 11A. Text of Garnier's "List of Reptilia of Ontario" (1881) on p. 37 of *The Canadian Sportsman and Naturalist*, Vol. 1, No. 5. Collection of author.

[11] The current species total does not include unnamed unisexual lineages of *Ambystoma* (see ORAA 2023), but it does include *Ambystoma tigrinum*, although the few records of the species (1915, 1950 and 1972), all from Point Pelee, are considered suspect (Ngo et al. 2009) and the species is now considered extirpated, if it indeed was ever autochthonous to Ontario. Although not enumerated by Garnier in his published lists, the manuscript catalogue of his collection included one *A. conspersum* (syn. *Ambystoma tigrinum*) from Kintail, Huron County, 230 airline km from Point Pelee, collected in 1889, but it is certain that this was another ambystomatid.



38 THE CANADIAN SPORTSMAN AND NATURALIST.

20—*R. leberis* (?) Leather Snake. Reported by several parties, and although I never saw a Canadian specimen, yet it has been identified by Mr. Smith, of Ann Arbor, as being in Michigan. Reports most probably correct.

21—*Storeria occipito-maculata.* Red-bellied Snake. Not very rare. Captured in Kent, Bruce and Huron counties, and reported from Owen Sound.

22—*S. DeKayi.* Little Brown Snake. Found all over the western portions of Ontario.

23—*Eutainia saurita.* Ribbon Snake. I captured one twenty-two inches long in Bruce county; the only Canadian specimen so far examined by me.

24—*E. radix.* Hoy's Garter Snake. I captured several young specimens on St. Clair Flats.

25—*E. sirtalis.* Garter Snake. This species is considered the typical Garter Snake. I got specimens in Dover township, but never captured it farther north. Not very common.

26—*E. dorsalis.* Striped Garter Snake. The best known variety; everywhere abundant. The best marked specimens I have yet seen were procured near Toronto by Mr. W. Brodie.

27—*E. ordinata.* A variety with square spots on the sides, seemingly the young of *dorsalis.*

28—*E. ordenoides.*
29—*E. parietalis.*
30—*E. vagrans.*
31—*E. elegans.*
} Varieties with more or less red markings on the sides. Generally found in marshes or low lands.

I have captured all sorts of gradings and shadings of coloured specimens around Lake St. Clair. I have also received a few well marked *parietalis* from Mr. John McMillan, Magnetewan, Muskoka.

32—*E. Pickeringii.* I have one or two specimens from Mitchell's Bay, Co. Kent, that approach closely to this species or variety, as far as blackness of colour is concerned.

33—*E. obscura.* A variety without dorsal stripes. Scarcely admissable even as a variety. The side stripes are generally very obscure.

34—*Bascanium constrictor* (?). Black Snake. Gananoque. I have not as yet seen or procured one, but doubtless it exists there among the rocks.

35—*Scotophis vulpinus.* Fox Snake. Kent Co. I saw one which measured 7 feet 11 inches, captured by Mr. C. Dusten, and I have one 6 feet 3 inches, taken by Mr. Buck, of Mud creek. Not common. This is the largest and most powerful of our Canadian snakes, at the same time, one of the most innocent, harmless and timid.

36—*Cyclophis vernalis.* Grass Snake, Green Snake, Spring or Summer Snake, &c. A well known and beautiful little creature.

37—*Diadophis punctatus.* Ring-necked Snake. Not rare in Huron and Bruce counties in damp woods.

38—*D. punctatus* var. *amabilis.* I have such a specimen which seems to be the young of the last (*D. punctatus*) and admit it in deference to Mr. Cope, though doubtful of it being worth consideration.

39—*Ophibolus doliatus* var. *triangulus.* Milk Snake, Chicken Snake, House Snake, Chain Snake, &c. A well-known species.

Family CROTALIDÆ.

40—*Crotalus horridus.* Banded Rattlesnake. Rapidly becoming extinct. I saw one killed on the mountain a few miles east of Hamilton in 1859, and one in 1873, captured not far from Niagara. The measured about three feet each.

41—*Crotalophorus tergemina.* Massasauga. Prairie Rattlesnake. I saw the decaying remains of one in Tilberry marsh. The rattles were gone, but having no means of carriage, had reluctantly to leave it. Not rare formerly along Lake Erie, although now exceedingly scarce.

IV. BATRACHIA.

Anura (Family Tailless Batrachians)

RANIDÆ.

42—*Rana helecina.* Leopard Frog. Everywhere.

43—*R. pulustris.* Pickerel or yellow-legged frog. Common.

44—*R. clamitans.* Green Frog. Common.

45—*R.* var. *cæruleus.* I introduce this as a local variety. I captured several with a deep indigo head, but now changing in alcohol to a dark greenish brown.

46—*R. Catesbeyana.* Bull Frog. Common.

Fig. 11B. Text of Garnier's "List of Reptilia of Ontario" (1881) on p. 38 of *The Canadian Sportsman and Naturalist*, Vol. 1, No. 5. Collection of author.

knowledge of the fauna. In all, Garnier (1881b, 1882b) signaled the presence of 39 of the 50 species of amphibians and reptiles recognized as having occurred in Ontario in historical times (Table 1). For reptiles, he recorded 24 of 25 species, missing only *Coluber constrictor* (although the name appeared on his "List"). For amphibians his total was a more modest 15 of 25 species, although as noted above, many of those missed were not discovered or differentiated until much later, and others were from areas far from Garnier's centers of activity in Bruce and Huron counties and near Lake St. Clair. For comparison, Nash (1905, 1908), a quarter century later recognized 27 species of reptiles and 23 amphibians in Ontario, but correcting for misidentifications and synonyms he actually added only one species, *Hemidactylium scutatum*, to Garnier's total. The similarity is not surprising, as Nash used many of Garnier's records, although without citing his papers. For example, Nash's records for a few species not actually occurring in the province (*Eumeces anthracinus*, *E. septentrionalis*, *Regina rigida*) were derived directly from Garnier.

In Garnier's last published paper, in the Toronto newspaper *The Empire* (Garnier 1894), he made a final adjustment to his tally of the snake of Ontario, increasing the number from 28 to 33. In this work (Fig. 13), he updated some generic assignments and deleted *Regina leberis*, *Nerodia niger*, *Eutainia vagrans*, *E. elegans*, *Diadophis punctatus* var. *amabilis* and *Scophotis Allighaniensis* from his earlier lists (Garnier 1881b, 1882b). However, he also added ten new names (Table 2). Most of these apply to extralimital taxa but their true identities are mostly unambiguous, although a few are more problematic or interesting. He explicitly proposed a new varietal (subspecific?) name for blue-spotted garter snakes, and he suggested the occurrence of the bullsnake in far western Ontario, his only published reference to the herpetofauna of this region of the province.

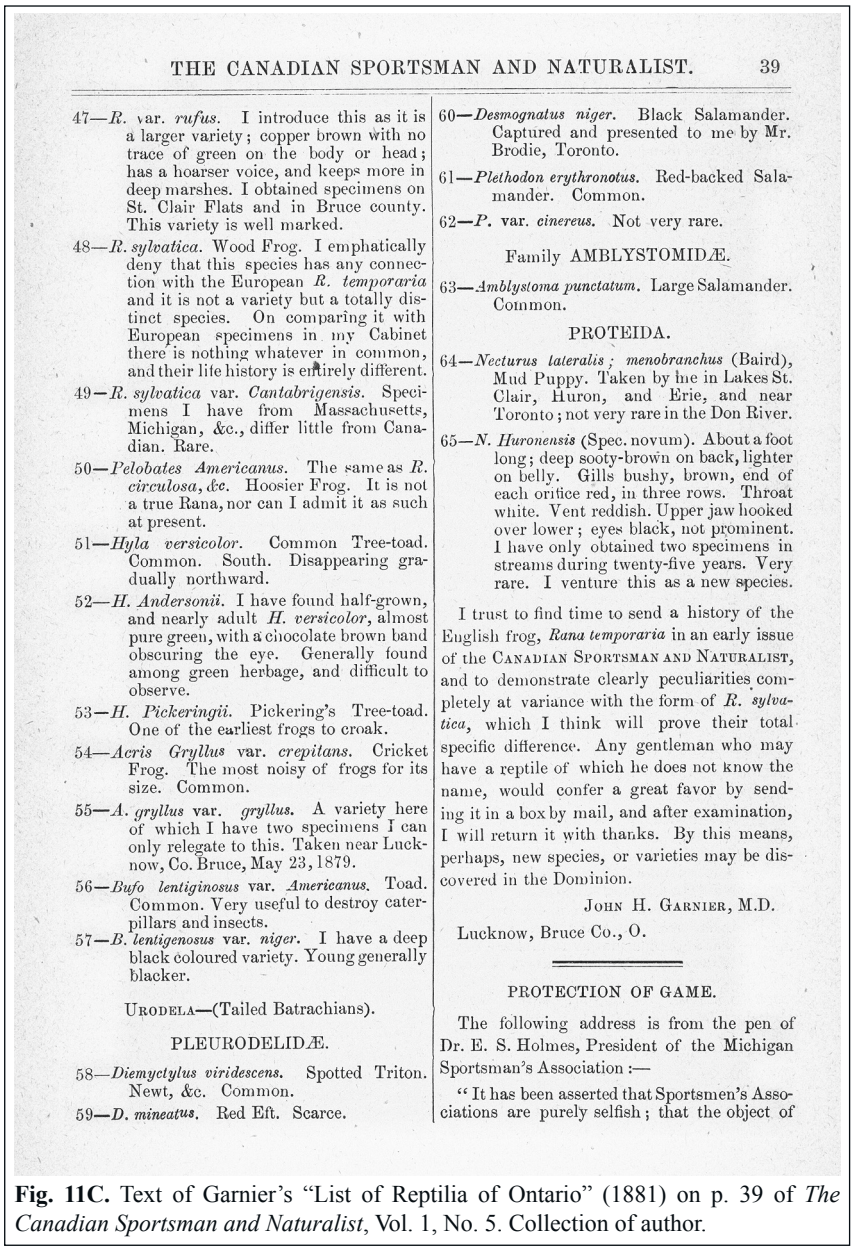
Two new Mudpuppies

The last two taxa on Garnier's (1881b) "List" were *Necutrus lateralis* (syn. *N. maculosus*) and *N. Huronensis*, While there is ambiguity over Garnier's intentions in proposing new anuran varietal names (see above), it is crystal clear that he intended to name *N. Huronensis* as new: "65 — *N. Huronensis* (Spec. novum). About a foot long; deep sooty-brown on back, lighter on belly. Gills bushy, brown, end of each orifice red, in three rows. Throat white. Vent reddish. Upper jaw hooked over lower; eyes black, not prominent. I have only obtained two specimens in streams during twenty-five years. Very rare. I venture this as a new species." (Fig. 11). The description unambiguously meets requirements of the *International Code of Zoological Nomenclature* (Anonymous 1999) for names proposed prior to 1931. Nonetheless, although Garnier's list itself has been cited numerous times (although if it was actually seen by most authors is less clear), *N. Huronensis* has never been mentioned in *Necturus*-specific literature such as Bishop (1926), Harris (1954, 1961) or Brode (1969) or in otherwise comprehensive works that list amphibian synonymies including Frost (1985 and subsequent online versions) or Fouquette and Dubois (2014), although many of these sources cited *Menobranchus latastei*, a species he described later (see below). The only subsequent publication to cite *Necturus huronensis* was that of Cox (1907) who says of it

"apart from the color due to local conditions, they possess no structural variation from the specific type sufficient to warrant the recognition of a new species." Cox's paper (Fig. 14) itself mostly escaped the notice of later authors as it appeared in another relatively obscure journal, the *Proceedings of Miramichi Natural History Association*, published in New Brunswick in only seven issues between 1899 and 1913.

Cox (1907), effectively synonymized *N. huronensis* with *N. maculosus,* which has an extremely wide distribution across large areas of the eastern United States and Canada. However, Chabarria et al. (2017) demonstrated that there are multiple lineages within *Necturus* that may warrant taxonomic recognition. Most notably, they suggested that the Great Lakes populations of *N. maculosus* might be distinct from typical, more southerly distributed populations, which would include the type locality in the Ohio River, as well as southern populations sometimes treated as *N. louisianensis*. Greenwald et al. (2020), however, found an east-west divergence across the Mississippi River, with typical *N. maculosus* likely including populations in both the Ohio River drainage and the Great Lakes, whereas western lineages they sampled (e.g., Minnesota and Iowa) were substantially divergent and likely related to populations in the Lower Mississippi basin (*N. louisianensis*). Raffaëlli (2022) inferred that the few, scattered Ontario records from the north shore of Lake Superior were part of the western lineage. This interpretation would add an additional subspecific taxon to the provincial herpetofaunal list (ORAA 2023), but as Garnier's type locality, although unstated, was clearly from Lake Huron (likely near his home in Bruce County), this would place it rather centrally in the distribution of *N. maculosus sensu stricto*. Were, however, Chabarria et al.'s (2017) results to be validated (sampling in the critical Ohio River Valley region has been limited to date) the Great Lakes populations would require a new name. In this instance *Proteus canadensis* Hodgkins, 1856, from the "Bay of Toronto, Lake Ontario" would have priority over *N. huronensis*, so under either scenario Garnier's name would be a junior synonym.

A third Ontario *Necturus* type locality is that of *Menobranchus latastei*, described by Garnier (1888a) from the Maitland River and treated by Cope *in* Garnier (1888a) as *N. lateralis* var. *Latastei*. Garnier contrasted this form with the "ordinary form" that he had examined from the Don River (Toronto) and Lake St. Clair. Although two USNM specimens sent by Garnier to Cope (Cochran 1961; Fig. 15) seem to be the only extant material from the type series, Garnier's catalogue of his collection indicates that he subsequently assigned material from London (1881) and Lucknow (1883 and 1887) to this form, whereas specimens from the Lake St. Clair area were considered *M. lateralis* (*N. maculosus*). The catalogue makes no mention of *N. huronensis*. The Maitland River empties into Lake Huron at Goderich, Huron County, 29 km SSW of Lucknow and the question arises if Garnier (1888a) erected *M. latastei* as a replacement name for *N. huronensis*. If so, the surviving syntypes of former might be the same two specimens mentioned in the description of the latter, making *M. latastei* an objective junior synonym of *N. huronensis.*



THE CANADIAN SPORTSMAN AND NATURALIST. 39

47—*R.* var. *rufus*. I introduce this as it is a larger variety; copper brown with no trace of green on the body or head; has a hoarser voice, and keeps more in deep marshes. I obtained specimens on St. Clair Flats and in Bruce county. This variety is well marked.

48—*R. sylvatica*. Wood Frog. I emphatically deny that this species has any connection with the European *R. temporaria* and it is not a variety but a totally distinct species. On comparing it with European specimens in my Cabinet there is nothing whatever in common, and their life history is entirely different.

49—*R. sylvatica* var. *Cantabrigensis*. Specimens I have from Massachusetts, Michigan, &c., differ little from Canadian. Rare.

50—*Pelobates Americanus*. The same as *R. circulosa*, *&c.* Hoosier Frog. It is not a true Rana, nor can I admit it as such at present.

51—*Hyla versicolor*. Common Tree-toad. Common. South. Disappearing gradually northward.

52—*H. Andersonii*. I have found half-grown, and nearly adult *H. versicolor*, almost pure green, with a chocolate brown band obscuring the eye. Generally found among green herbage, and difficult to observe.

53—*H. Pickeringii*. Pickering's Tree-toad. One of the earliest frogs to croak.

54—*Acris Gryllus* var. *crepitans*. Cricket Frog. The most noisy of frogs for its size. Common.

55—*A. gryllus* var. *gryllus*. A variety here of which I have two specimens I can only relegate to this. Taken near Lucknow, Co. Bruce, May 23, 1879.

56—*Bufo lentiginosus* var. *Americanus*. Toad. Common. Very useful to destroy caterpillars and insects.

57—*B. lentigenosus* var. *niger*. I have a deep black coloured variety. Young generally blacker.

Urodela—(Tailed Batrachians).

PLEURODELIDÆ.

58—*Diemyctylus viridescens*. Spotted Triton. Newt, &c. Common.

59—*D. mineatus*. Red Eft. Scarce.

60—*Desmognatus niger*. Black Salamander. Captured and presented to me by Mr. Brodie, Toronto.

61—*Plethodon erythronotus*. Red-backed Salamander. Common.

62—*P.* var. *cinereus*. Not very rare.

Family AMBLYSTOMIDÆ.

63—*Amblystoma punctatum*. Large Salamander. Common.

PROTEIDA.

64—*Necturus lateralis*; *menobranchus* (Baird), Mud Puppy. Taken by me in Lakes St. Clair, Huron, and Erie, and near Toronto; not very rare in the Don River.

65—*N. Huronensis* (Spec. novum). About a foot long; deep sooty-brown on back, lighter on belly. Gills bushy, brown, end of each orifice red, in three rows. Throat white. Vent reddish. Upper jaw hooked over lower; eyes black, not prominent. I have only obtained two specimens in streams during twenty-five years. Very rare. I venture this as a new species.

I trust to find time to send a history of the English frog, *Rana temporaria* in an early issue of the Canadian Sportsman and Naturalist, and to demonstrate clearly peculiarities completely at variance with the form of *R. sylvatica*, which I think will prove their total specific difference. Any gentleman who may have a reptile of which he does not know the name, would confer a great favor by sending it in a box by mail, and after examination, I will return it with thanks. By this means, perhaps, new species, or varieties may be discovered in the Dominion.

John H. Garnier, M.D.

Lucknow, Bruce Co., O.

PROTECTION OF GAME.

The following address is from the pen of Dr. E. S. Holmes, President of the Michigan Sportsman's Association :—

"It has been asserted that Sportsmen's Associations are purely selfish; that the object of

Fig. 11C. Text of Garnier's "List of Reptilia of Ontario" (1881) on p. 39 of *The Canadian Sportsman and Naturalist*, Vol. 1, No. 5. Collection of author.

Table 2. Taxa added to the Ontario snake fauna by Garnier (1894) in "The Snakes of Ontario" published in *The Empire* (see also Fig. 13). These nomina had not appeared in his earlier lists (Garnier 1881b, 1882b). Garnier's names are given verbatim (including question marks, when present), with my additions in square brackets ([ ]). Current Name is the name corresponding to Garnier's name and does not necessarily reflect the actual identity of taxon referred to. The right-hand column gives the likely identity of the taxon as well as other remarks.

Garnier (1894) name	Current Name	Probable Identity; Remarks
Caudisona miliaria	*Sistrurus miliarius*	*Sistrurus catenatus*; *S. miliarius* is extralimital.
Heterodon var. *simus*	*Heterodon simus*	*Heterodon platirhinos*; *H. simus* is extralimital.
Tropidonotus [*Sipedon*] var. *Woodhousei*	*Nerodia erythrogaster*	*Nerodia sipedon* (see footnote 7, Table 1)
Eutænia [*sirtalis*?] var. *Hopleyi* (var. nov.)[12]	nomen nudum	*Thamnophis s. sirtalis*
Eutænia Concinna	*Thamnophis sirtalis concinnus*	*Thamnophis s. sirtalis*; *T. s. concinnus* is extralimital
Eutænia approaching *Faireyi*	*Thamnophis proximus*	*Thamnophis s. sirtalis*; *T. proximus* is extralimital
Eutænia Sirtalis var. *Marciana*	*Thamnophis marcianus*	*Thamnophis s. sirtalis*; *T. marcianus* is extralimital
Coluber obsoletus	*Pantherophis obsoletus*	*Pantherophis alleghaniensis spiloides*; *P. obsoletus* is extralimital
Ophiobolus doliatus	*Cemophora coccinea*	*Lampropeltis triangulum*?[13]; *Cemophora coccinea* is extralimital
Pityophis Melanolencas [sic]	*Pituophis melanoleucas*	*Pituophis catenifer sayi*?[14] (extralimital)

[12] Garnier was explicit that he considered this to be a new variety. Presumably this was intended to be a subspecies of *Eutænia sirtalis*. As in his initial list of 1881, Garnier often omitted the specific epithet when giving varieties. It was distinguished by being blue spotted and was recorded from Middlesex County, the area surrounding London, Ontario. It clearly applies to a color morph of nominotypical *Thamnophis sirtalis*. The name, incorrectly formed in the masculine genitive, was certainly meant to honor Catherine Cooper Hopley (1817–1911), who was an expert on and popularizer of snakes (Adler 2007) and likely had come to Garnier's attention through the publication of her book *Snakes: Curiosities & Wonders of Serpent Life* (1882).

[13] This species was described by Garnier (1894) as a "corn snake" but *Ophiobolus doliatus* is in the synonymy of *Cemophora coccinea*, the scarlet snake. *Lampropeltis triangulum* may have been the species intended, but Garnier was familiar with this species, and it is possible that a juvenile *Pantherophis* sp. May have been the source of these records.

[14] Garnier stated of this species "bullsnake, west of lake of the Woods (rare)." Lake of the Woods lies in the far west of Ontario at its junction with Manitoba and Minnesota and this is the only mention in any of his writings of a reptile or amphibian from this region. The bullsnake, *Pituophis catenifer sayi*, is not known from Ontario, nor has it been recorded in Manitoba. However, there is an isolated population in northwestern Minnesota, with records from Marshall County, approximately 100 km WSW of Lake of the Woods (Moriarty and Hall 2014). Knowledge of this population may be the source of Garnier's listing of the bullsnake. Regardless, "west of Lake of the Woods" would have placed the species outside the bounds of Ontario, but perhaps Garnier thought it was likely to be found eventually.

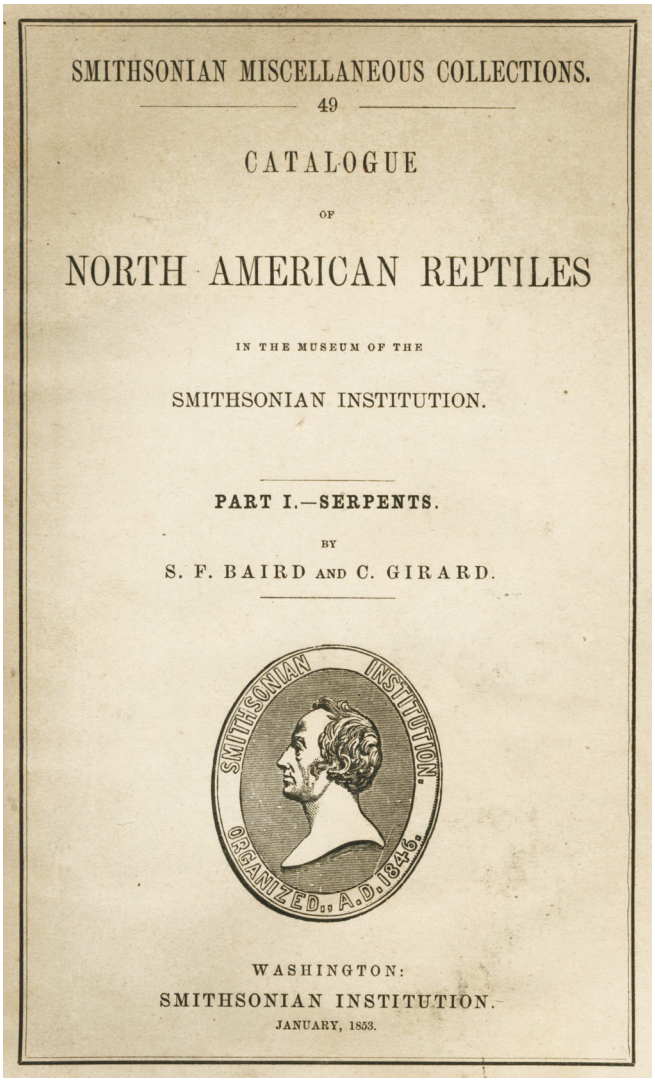
Impact of Garnier's Herpetological Work

Garnier's work, perhaps other than that on the Mink Frog (Garnier 1883), went largely under-appreciated in the wider scientific community. Only this work and his two papers in the *Proceedings of the Canadian Institute* were listed in the *Royal Society Catalogue of Scientific Publications*, and only his paper on "Snake poisons" in the latter journal was indexed in *Zoological Record*. His "List" (Garnier 1881b) was not cited by Piersol (1913) or Williams (1913), nor by Logier (1937, 1939, 1952), some of the standard early works on Ontario. Cox (1907), the only author ever to acknowledge the name *Necturus huronensis*, however cited Garnier's (1881b) locality records for various salamanders and Nash (1905, 1908) credited him with localities for several reptile species, although without actually citing the paper. Garnier (1881b) was also cited by Wright and Wright (1942) in the second edition of the *Handbook of Frogs and Toads.* Apparently from this citation it was included in references (although not actually cited) by Bishop (1943), Carr (1952), Wright and Wright (1962) in the *Salamanders*, *Turtles* and *Snakes*, respectively, in the same Comstock Handbook series, and by Logier and Toner (1955, 1961) in their checklists of the herpetofauna of Canada and Alaska. In more recent literature, it was cited by Cook (2007), Rowell (2012) and in the *Ontario Reptile and Amphibian Atlas* (ORAA 2023).

Garnier's paper describing *Menobranchus latastei* was more often cited. Interestingly, Cope (1889) did not mention *M. latastei* by name or include it in his synonymy of *Necturus maculosus*, but he did state (p. 26) "An entirely black variety has been sent me by Dr. J. G. [sic] Garnier of Lucknow, Ontario, which he has obtained from the Maitland and Lucknow Rivers." This might imply that Cope was not aware that Garnier's (1883) description (and his own suggestion that it might be considered a subspecies of *N. maculosus*) had actually been published. This paper was, however, cited by Piersol (1913), Bishop (1926, 1947), Schmidt (1953) in the 6th and final edition of *Check List of North American Amphibians and Rep-*

tiles, and by Harris (1954, 1961). Bishop (1926) mentioned *M. latastei* (as *N. latastei*), but did not accord it any taxonomic rank, although he noted that specimens he examined from Pointe au Baril on Georgian Bay were similar to Garnier's. Cochran (1961) cited two syntypes, USNM 22331–32, apparently the same specimens sent to Cope for his opinion. Frost (2025) has likewise cited Garnier in this context.

Garnier's (1881b) brief comments on the two species of rattlesnake in Ontario have been cited several times in discussions of the decline of *Sistrurus catenatus* and the extirpation of *Crotalus horridus* (Cook 2007; Rowell 2012). His published record for the former was from Tilberry (presumably Tilbury) Marsh, and his archived collection catalogue lists specimens obtained from Washago in 1881 and Stokes Bay, Bruce County in 1885. Although Stokes Bay is still inhabited by massasaugas, there are no recent records from Washago or Tilbury (ORAA 2023). Garnier (1881b) stated that they were "not rare formerly along Lake Erie, although now exceedingly rare." For *Crotalus horridus* Garnier noted a specimen that he himself collected from "vic. Niagara Falls" in 1877 and in his "List" he mentioned specimens reported "on the mountain [the Niagara Escarpment] a few miles east of Hamilton" in 1859 and one collected "not far from Niagara" in 1873 (possibly the same as the 1877 record, with the date a *lapsus*). Garnier (1881b) stated that they were "rapidly becoming extinct." As early as 1930, *Crotalus* was considered to be extirpated in Ontario (LeRay 1930). Toner (1958), however, recorded then recent (but undated) records from Niagara Glen and Point Pelee as well as older records from Fitzwilliam Island and Dundas (the former vouchered). The species is now considered to have been extirpated from Ontario by 1941, although there are unverified records up to about 1960 (Rowell 2012; ORAA 2023). The historical importance of Garnier's work on snakes has been discussed at some length in *The Snakes of Ontario* (Rowell 2012).


SMITHSONIAN MISCELLANEOUS COLLECTIONS.

49

CATALOGUE

OF

NORTH AMERICAN REPTILES

IN THE MUSEUM OF THE

SMITHSONIAN INSTITUTION.

PART I.—SERPENTS.

BY

S. F. BAIRD AND C. GIRARD.

SMITHSONIAN INSTITUTION. ORGANIZED A.D. 1846.

WASHINGTON:

SMITHSONIAN INSTITUTION.

JANUARY, 1853.

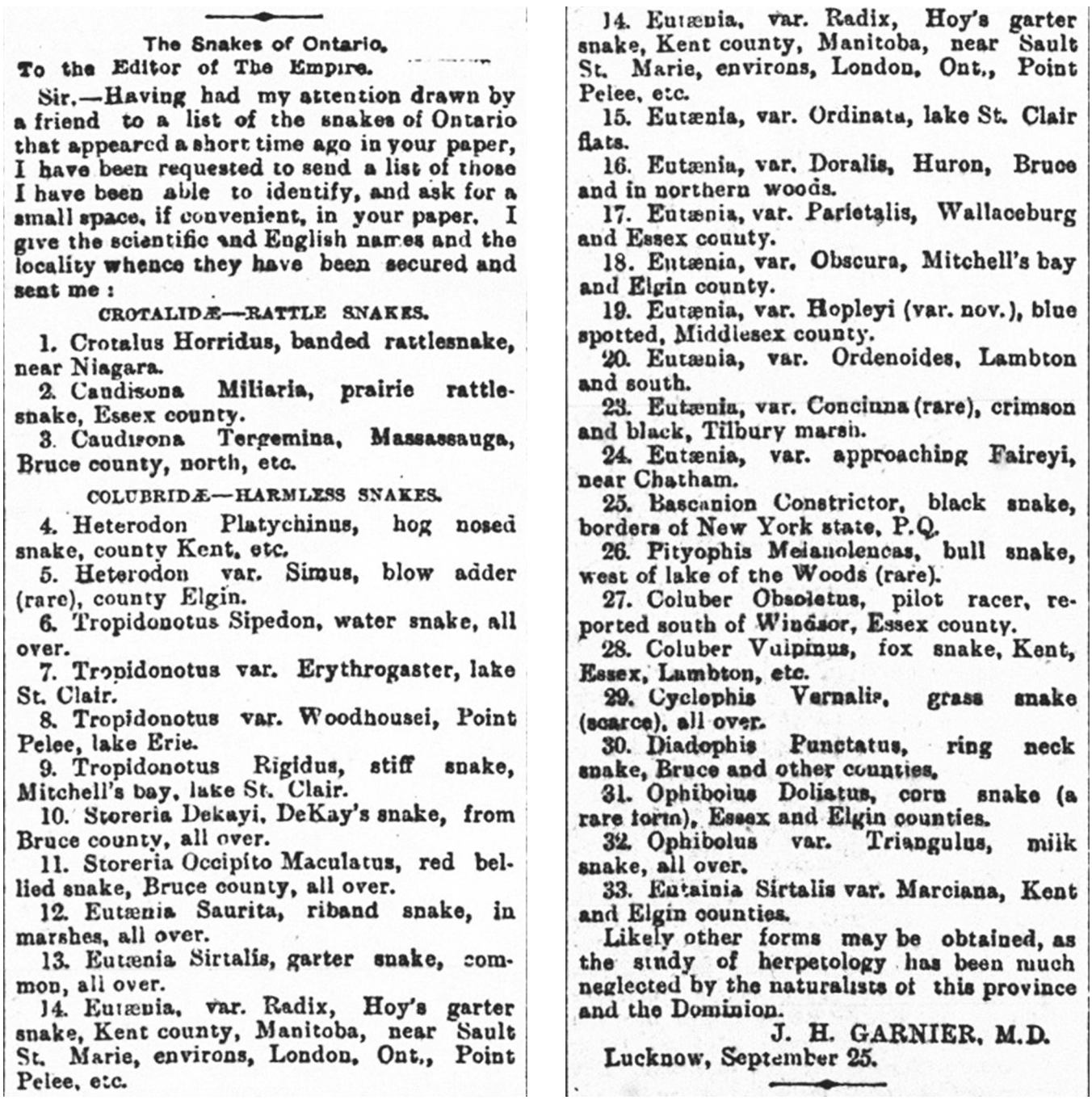
Fig. 12. Cover of Baird and Girard (1853) *Catalogue of North American reptiles in the Museum of the Smithsonian Institution. Part I. – Serpents,* Garnier's main source for his naming of Ontario snakes. Collection of author.

Conclusions

John Hutchison Garnier was an interesting figure in the early history of Canadian herpetology. He was an autodidact whose reputation, at least during his lifetime, was disproportionate to his small publication output. As one of few naturalists at the edge of the settled areas of Ontario in the middle 19th century, he supplied the needs of others by providing specimens and natural history observations to zoologists around the world while assembling a large private museum collection. His network of correspondents brought him into contact with leading herpetologists of the day, but he was left to his own devices to interpret the literature he received from them. His local fame probably stemmed as much from his cantankerousness and erratic behavior as it did from his scientific contributions (Mackenzie 1927; Johnston 1933a, 1933b; Roland 1990).

Garnier was recognized as an expert on amphibians and reptiles, but this reputation was greater than his meager publication record warranted and rested chiefly on his being one of the only people in Ontario at the time with an interest in the subject. His publications are of interest for precisely this reason. His "List of Reptilia of Ontario" was the first attempt to compile a provincewide herpetological inventory. By dint of this, he established a place in the history of Canadian herpetology (Cook 2007; Rowell 2012). Although his list was rife with errors, it was impressive in that he recognized 39 of the now recognized 50 species of Ontario amphibians and reptiles, recording (albeit often under the wrong names) the majority of species in the parts of the province that were known to him.

Garnier's works are also of interest because he proposed new nomina in three of his papers. *Menobranchus Latastei* achieved some recognition and, although it was quickly synonymized with *Necturus maculosus*, it lives on in the synony-



The Snakes of Ontario.

To the Editor of The Empire.

Sir,—Having had my attention drawn by a friend to a list of the snakes of Ontario that appeared a short time ago in your paper, I have been requested to send a list of those I have been able to identify, and ask for a small space, if convenient, in your paper. I give the scientific and English names and the locality whence they have been secured and sent me :

CROTALIDÆ—RATTLE SNAKES.

1. Crotalus Horridus, banded rattlesnake, near Niagara.
2. Caudisona Miliaria, prairie rattlesnake, Essex county.
3. Caudisona Tergemina, Massassauga, Bruce county, north, etc.

COLUBRIDÆ—HARMLESS SNAKES.

4. Heterodon Platychinus, hog nosed snake, county Kent, etc.
5. Heterodon var. Simus, blow adder (rare), county Elgin.
6. Tropidonotus Sipedon, water snake, all over.
7. Tropidonotus var. Erythrogaster, lake St. Clair.
8. Tropidonotus var. Woodhousei, Point Pelee, lake Erie.
9. Tropidonotus Rigidus, stiff snake, Mitchell's bay, lake St. Clair.
10. Storeria Dekayi, DeKay's snake, from Bruce county, all over.
11. Storeria Occipito Maculatus, red bellied snake, Bruce county, all over.
12. Eutænia Saurita, riband snake, in marshes, all over.
13. Eutænia Sirtalis, garter snake, common, all over.
14. Eutænia, var. Radix, Hoy's garter snake, Kent county, Manitoba, near Sault St. Marie, environs, London, Ont., Point Pelee, etc.

14. Eutænia, var. Radix, Hoy's garter snake, Kent county, Manitoba, near Sault St. Marie, environs, London, Ont., Point Pelee, etc.

15. Eutænia, var. Ordinata, lake St. Clair flats.
16. Eutænia, var. Doralis, Huron, Bruce and in northern woods.
17. Eutænia, var. Parietalis, Wallaceburg and Essex county.
18. Eutænia, var. Obscura, Mitchell's bay and Elgin county.
19. Eutænia, var. Hopleyi (var. nov.), blue spotted, Middlesex county.
20. Eutænia, var. Ordenoides, Lambton and south.
23. Eutænia, var. Concinna (rare), crimson and black, Tilbury marsh.
24. Eutænia, var. approaching Faireyi, near Chatham.
25. Bascanion Constrictor, black snake, borders of New York state, P.Q.
26. Pityophis Melanolencas, bull snake, west of lake of the Woods (rare).
27. Coluber Obsoletus, pilot racer, reported south of Windsor, Essex county.
28. Coluber Vulpinus, fox snake, Kent, Essex, Lambton, etc.
29. Cyclophis Vernalis, grass snake (scarce), all over.
30. Diadophis Punctatus, ring neck snake, Bruce and other counties.
31. Ophibolus Doliatus, corn snake (a rare form), Essex and Elgin counties.
32. Ophibolus var. Triangulus, milk snake, all over.
33. Eutainia Sirtalis var. Marciana, Kent and Elgin counties.

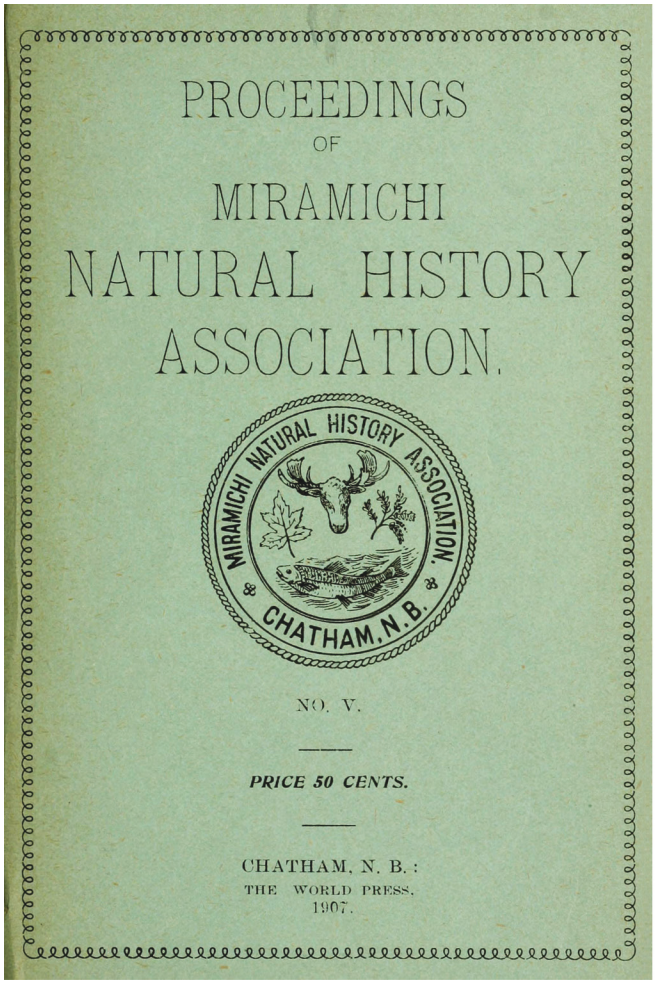
Likely other forms may be obtained, as the study of herpetology has been much neglected by the naturalists of this province and the Dominion.

J. H. GARNIER, M.D.

Lucknow, September 25.

Fig. 13. Garnier's last herpetological publication,"The snakes of Ontario" from p. 16 of *The Empire* of 6 October 1894. From microfilm copy at the University of Toronto Library System.

my of that species. His other new names, however, have fallen into almost total obscurity. In part this is because their associated descriptions were short, superficial and poorly executed, but maybe more so because they were published in a short-lived, regional journal (*The Canadian Sportsman and Naturalist*) and in a newspaper (*The Empire*). Only one of these, *Necturus Huronensis* Garnier, 1881, was explicitly proposed as a new species and provided some descriptive text. The others include a replacement name for the mink frog (*Pelobates Americanus*) and the proposal of four new varieties of snakes and frogs, each distinguished on the basis of color and leaving open the possibility that Garnier's use of "variety" may not have been intended to have taxonomic significance. Regardless, in none of these instances do any of Garnier's names pose a threat to established nomenclature. They are, however, a bibliographic anomaly as they appear, with one exception for *N. Huronensis* (Cox 1907), to never have been noted in the literature. The "rediscovery" of such lost nomina can, howev-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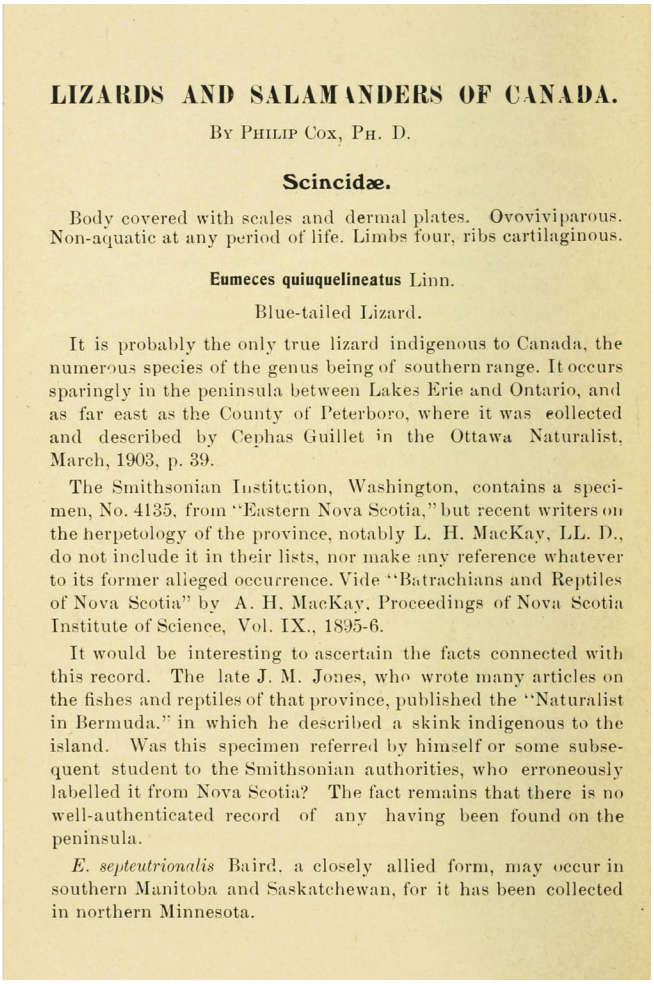
LIZARDS AND SALAMANDERS OF CANADA.

By Philip Cox, Ph. D.

Scincidæ.

Body covered with scales and dermal plates. Ovoviviparous. Non-aquatic at any period of life. Limbs four, ribs cartilaginous.

Eumeces quiuquelineatus Linn.

Blue-tailed Lizard.

It is probably the only true lizard indigenous to Canada, the numerous species of the genus being of southern range. It occurs sparingly in the peninsula between Lakes Erie and Ontario, and as far east as the County of Peterboro, where it was collected and described by Cephas Guillet in the Ottawa Naturalist, March, 1903, p. 39.

The Smithsonian Institution, Washington, contains a specimen, No. 4135, from "Eastern Nova Scotia," but recent writers on the herpetology of the province, notably L. H. MacKay, LL. D., do not include it in their lists, nor make any reference whatever to its former alleged occurrence. Vide "Batrachians and Reptiles of Nova Scotia" by A. H. MacKay, Proceedings of Nova Scotia Institute of Science, Vol. IX., 1895-6.

It would be interesting to ascertain the facts connected with this record. The late J. M. Jones, who wrote many articles on the fishes and reptiles of that province, published the "Naturalist in Bermuda," in which he described a skink indigenous to the island. Was this specimen referred by himself or some subsequent student to the Smithsonian authorities, who erroneously labelled it from Nova Scotia? The fact remains that there is no well-authenticated record of any having been found on the peninsula.

E. septentrionalis Baird, a closely allied form, may occur in southern Manitoba and Saskatchewan, for it has been collected in northern Minnesota.

Fig. 14. Journal cover (left) of volume No. V of *Proceedings of Miramichi Natural History Association* and (right) title page of "Lizards and salamanders of Canada" by Philip Cox (1907), the only paper to acknowledge Garnier's name *Necturus huronensis*. Images from Biodiversity Heritage Library. Original in the collection of the New York Botanical Garden, LuEsther T. Mertz Library.

er, have nomenclatural implications (e.g. Frétey and Raffaëlli 2021) and they deserve to be investigated.

At the time of his death, Garnier had been working on a book-length manuscript, still extant, on the herpetofauna of Ontario. But even had it been published, it would have been unlikely to have sealed his herpetological legacy. By the end of the 19th century, herpetology, like zoology in general, was becoming a more "professional" field, based at universities and museums. Garnier's knowledge, gathered mostly in isolation and without the benefit of the critical interaction of colleagues or the ready access to literature and professionally curated collections, would have been outdated.

Garnier's own large collections were once touted as "the most complete in the land" (Mackenzie 1927). A large number of his specimens are still extant in the Royal Ontario Museum and a smaller number are in the Smithsonian Institution. It is likely that some of his exchanged specimens are also still present in collections in Europe, India and Australia. Unfortunately, the majority of these represent exotic specimens, obtained — often with minimal data — from his correspondents. His surviving Ontario material is limited to just 12 confirmed specimens in the R.O.M. and 38 in the Smithsonian, only a few of which can be matched to his preserved collection catalogue or his published records.

Garnier's tangible impacts on his various fields of accomplishment — herpetology, ornithology, medicine and even playwriting, must unfortunately be regarded as negligible. However, as one of the pioneering naturalists in Ontario, his contributions, mostly long forgotten, paved the way for everything that came after, and it is hoped that this retrospective of his life and works will contribute to recovering his place in the history of Canadian herpetology.

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I thank Amy Lathrop, Charlotte Chaffey and Irene Wu of the Royal Ontario Museum for providing current records and archival material relating to Garnier's herpetological collections and for locating obituaries of Garnier from Toronto newspapers. Jeff Rowell kindly provided the image of Gar-

Fig. 15. Syntype of *Menobranchus latastei* (syn. *Necturus maculosus*), USNM 22332, dorsal view. Public Domain. Creator: James A. Poindexter II. Image used under Creative Commons Zero (CC0) license.

nier in old age. Margot Accettura, Falvey Library, Villanova University went above and beyond to obtain a scan of Garnier's 1894 paper in *The Empire*. The paper benefitted from the constructive comments of Amy Lathrop and an anonymous reviewer.

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